

**AN INVESTIGATION INTO THE CONSIDERATION OF
CHILDREN AND YOUNG PEOPLES' PREFERENCES IN
CHILDREN'S HOSPITAL DESIGN**

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Submitted in Partial Fulfilment of the Requirements of the
Degree of Doctor of Philosophy

March 2013

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Acknowledgements

It would not have been possible to write this doctoral thesis without the help and support of the kind people around me, to only some of whom it is possible to give particular mention here.

I would like to thank Dr. Patricia Tzortzopoulos for all her support guidance and advice throughout my study, and for her time spent on, and commitment to reviewing drafts of this thesis. I would also like to thank Dr. Monty Sutrisna for taking time to advice and facilitate the research.

This study would not have been possible without the willingness of The Royal Alexandra Children's Hospital at Brighton and The Royal Manchester Children's Hospital to allow me to conduct the research in the Hospitals, and the willing assistance and co-operation of the staff and design team during its completion. I am very thankful for the opportunity provided by the Hospital and I greatly appreciated the continual welcome and support from staff throughout the study.

In my daily work I have been blessed with a friendly and cheerful group of fellow students. I would like to thank all the team of researchers from SCRI (Salford Centre for Research and Innovation in the Built and Human Environment) for the friendship and numerous discussions.

Last, but not least, my long suffering parents and my husband for all their unconditional love, emotional sacrifices, financial support and for their constant help and encouragement and for being there when I've needed them. Without these people the writing of this thesis would not have been possible.

Thank you . . .

Declaration

I declare that this thesis is my original work and has not been submitted, in whole or in part, for a degree at this or any other university.

Abstract

This study was conducted to increase the understanding of the involvement of children in the design process of the children's hospitals environment from their perspectives. It was aimed to build rich picture of the process, methods, benefits and problems associated with engaging children during the design process of children's hospital. It also provides a set of guidelines to apply for the process of involvement, which can be applied in future design projects conducted with children.

The research methodology employed a case study approach, including two case studies: Royal Alexandra children's Hospital and Royal Manchester Children's Hospital. The process of identifying children's preferences and considering them into the different stages of the design process is described. Different research techniques have been applied, including literature review and synthesis, interviews and content analysis. The contribution of this research is to address the gap identified in the literature and practice between the hospital design process and the needs of its users, i.e. children. It is intended to addresses the role of user perspective, the empowerment of the users, and the quality of the final outcome. These issues are examined from the points of view of hospital staff, designer, PFI. As a result, a better understanding of children and young people's participation during the design process of hospital was achieved. The research has produced a set of guidelines for the process of involvement, which can be applied in future design projects to support project teams to define the process and tools for children's participation.

1. INTRODUCTION

1.1 Introduction

This chapter is devoted to provide an introduction to the research described in this thesis. It provides the rationale for the importance of incorporating children's perspectives in the design of children's hospitals. It presents the background of the study, its justification, the aim and objectives of the research and an overview of the research method adopted.

1.2 Background to the research

It is becoming increasingly difficult to ignore the impact of the built environment on healthcare in hospital spaces (e.g. Proshansky et al., 1976; Lawson, 2001; Codinhoto et al., 2008; Ignelzi, 2011; Nanda and Hathorn, 2012). Patients' wellbeing, ranging from physical to emotional and social needs, is the prominent part of any medical consideration. In order to enhance environmental conditions, environmental stressors should be identified and eliminated accordingly and environmental features, which are supportive to individual wellbeing, need to be enhanced (Stokols, 1996). Douglas and Douglas (2005) also indicated that the wellbeing of patients has a relationship with the built healthcare environment.

A considerable number of studies in healthcare design have been performed by Ulrich (1991a, 1991b, 1992b, 1999, 2000, 2001, 2003, 2008, 2013), who concentrates on the effects of healthcare facilities, i.e. the built environment, on medical outcomes. The theory of supportive design in healthcare settings by Ulrich (1991b) includes the assumption that "supportive surroundings facilitate patients coping with the major stress accompanying illness. The effects of supportive design are complementary to the healing effects of drugs and other medical technology, and foster the process of recovery" (p. 97).

Accordingly, Foque and Lammineur (1995) argue that relating any design decision to the human scale promotes project viability and supportive design as well as other satisfactory outcomes. They indicate that such relationships could be through "inviting the client to co-operate in an early stage of the process and making them

aware of the importance of the decision-making phase” (p.37). To provide environments in which patients’ wellbeing is supported and encouraged, participation of the users is necessary in its planning and design (Fouque and Lammineur, 2000).

Druin (1998) has investigated participatory design and argues that it is possible to identify new design possibilities through participatory design methods. Whereas traditional design research methods focuses primarily on observational research, interviews and questionnaires with users, participatory design attempts to elicit what users think, feel and dream through focusing on the things people make (Sanders 1999).

Furthermore, Heinbokel et al. (1996:226) defines user involvement as “consideration of users’ needs” and in a strong form, “participation of users in the design process.” Cutler and Taylor (2003) defined ‘participation’ and ‘involvement’ as ‘taking part in decision making’, from giving viewpoints on a specific issue for adults to decision-making. Children’s participation has been subject of argument by number of authors. According to Lansdown (2001) in ‘consultative processes’ children have no control, and processes are initiated, led and managed by adults to improve legislation and services and in ‘participatory processes’ children can collaborate with adults and power is shared between them to develop services. Participatory design can be referred to as a design process where different stakeholders are involved in the design from the early stages and continue to have involvement throughout the process (Gould and Lewis 1985; Blomberg and Henderson 1990; Cherry and Macredie 1999; Maguire 2001; Gulliksen et al. 2003).

Burke et al. (2007) expresses that currently, the views of children are not being considered in the design of all spaces for children. The same author also states that it is hard to capture children’s views, and these are hardly considered in practice, both in construction in general and on healthcare settings in particular. Understanding children’s and young people’s perspectives and needs as users of healthcare facilities can strengthen the capacity of policymakers, designers, and healthcare management to deliver supportive environments (Bishop, 2008). Therefore, it could not be possible to optimise services for particular users without eliciting users' views (Sartain et al,

2000). Participatory approaches requires to be flexible and “adaptable; – logistically, methodologically and ethically, and resource intensive” (Bishop and Said, 2011: 74).

In analysing the benefits of children's participation, Ecorys (2011) has highlighted three main areas:

- a. **participant outcomes** – the direct personal, social and educational benefits for participants (children and young people) and others directly working with them (planners, designers, educationalists, or academics)
- b. **impacts on spaces and places** – the physical evolution that can be directly related to the participatory example
- c. **impacts on communities** – the effects of participation on a given community or neighborhood

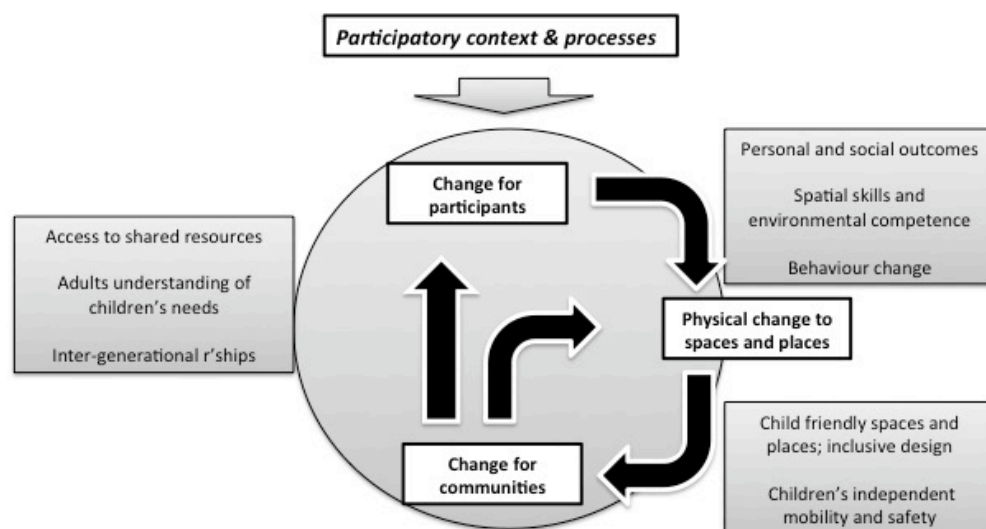


Figure 1.1 Participatory context and process (Ecorys, 2011)

As shown in figure 1.1, the outcomes of children's participation in a planning and design exercise have complex and inter-related relationships. Children's participation might result in actual changes to the environment, and adults' recognition of children's abilities can create further opportunities for children to be involved in decision-making of different types in interventions such as co-design projects, community regeneration initiatives, and so on (Ecorys, 2011).

The outcome of any process will highly depend on the level and method of participation of the users in the corresponding process. Improving the quality of the physical environment from the user's point of view is related to the type of care provided, for example in residential care, children and young people's perspective is different from those in mental health services (Dowling, 1997).

In the UK, the National Health Service (NHS) Plan (2000) specified that it is essential to focus more on the issues that really matter to patients to improve the patients' experience of the hospital environment. The hospital environment can be seen as a stressful place, especially if looked at from children's eyes as patients (NHS Estates, 2003). Therefore, the NHS is aiming to ensure the provision of friendly and welcoming healthcare environments, both new and refurbished, particularly in the context of children's hospitals (NHS Estates, 2003). Almost most of the times service authorities do not see the child as a 'whole person' with different needs of, physical, mental and social that are very different from those of an adult. Meeting these needs regardless of the reason to be hospitalised is essential to provide a normal experience for the child and family and try to improve the clinical outcome. This also would promote the importance of health protection and disease prevention as integral to childcare in any setting (DH, 2003).

However, children's voices were in the low level of input for UK planning and regeneration policies for the past two decades and their participation assumed on services that are designed 'for them' rather than 'with them' (Ecorys, 2011). Graue and Walsh (1998) state that we need: "To find it out. And to keep finding it out, because if we do not find it out, someone will make it up...and what they make up affects children's lives; it affects how children are viewed and what decisions are made about them. Finding it out challenges dominant images" (p. xvi). A more holistic understanding of what constitutes the patient's experience and feeling of wellbeing in a paediatric setting for both children and adolescents is considered essential (Bishop, 2008).

Studies on behalf of Action for Sick Children has identified several practical guides, tool kits and accepted principles to engage children and young people (Coad & Houston, 2007). They have found that children and young people certainly have

different levels of perception and preferences for participation with limited use in healthcare setting and subsequent evaluation to date.

Moreover, children's involvement in single participatory projects is not enough and they should be involved continuously for a holistic and broader view of participation in practice (Hart et al. 2004; Malone and Hartung, 2010). "Participation in practice has moved a long way in the past decade but, as is often the case in new ventures, each step forward alerts us to how much more we need to learn and understand to be effective whether as researchers, practitioners or policy-makers ... the challenge for the next decade will be how to move beyond one-off or isolated consultations to a position where children's participation is firmly embedded within organisational cultures and structures for decision-making." (Sinclair 2004: 116).

Theories and models influencing thinking within the field of children's participation are often used interchangeably in the practice. Hart's ladder of children's participation' (1992) was one of the first influential models within the field which attempts to identify the issue of children's participation through establishing different types of adult-child interaction in participatory processes. However, the models are based on 'general principles such as empowerment and respect for young people, rather than specific models or theories' (Shier 2001: 108).

There is a substantial amount of research highlighting projects that were carried out with, and by, children (e.g. Alderson, 2001; Whitehouse et al., 2001; Clark et al, 2001; Coad and Lewis, 2004; Blumberg and Devlin, 2006; de Vos, 2006; Bishop, 2008; Coad, 2012). However, there is scarce research focusing on participatory approaches focused on children and young people's preferences about healthcare environments (Rivlin and Wolfe, 1985; Whitehouse et al., 2001; Sherman et al., 2005; Blumberg and Devlin, 2006; de Vos, 2006) and there has even been fewer studies focused on the process of participatory approaches with children and young people in healthcare design (Naylor et al, 2002; Moules and O'Brien, 2012).

In summary, in response to the above discussion, the voices of children and young people are largely missing in healthcare design. The involvement of users is essential to allow the appropriate identification of their often evolving needs and requirements during the design process, in the central importance of enhancing customer

satisfaction (Malone and Hartung, 2010). Consultation with children needs to be planned very carefully prior to the design and children's participation to be continuous throughout the process. The existing models of children's participation (see for example; Hart, 1992; Treseder 1997; Shier, 2001) identify some fundamental principles of participation. The effective participation however, can be highly specific to the setting or context in which the activities take place (Ecorys, 2011). There is a significant gap in the literature on the exploration of the participatory design process of complex environments such as children's hospitals. Its process requires comprehensive analysis and description of the different steps of involvement and methods to carry out the process. From a practical point of view, as mentioned earlier in this chapter, the existing models of children's participation are more or less based on general principles which highlights a need for more specific models or theories for children's hospitals.

1.3 Research aim and objectives

1.3.1 Research aim

The aim of this study is to develop guidelines to support designers in incorporating children's perspectives in the design of children's hospitals. Focus is given to support the provision of friendly environments, and environments that will promote recovery.

1.3.2 Research objectives

The objectives stimulating this research are:

1. To understand the role of participatory design with children in children's hospital design.
2. To study the process and methods of identifying children's preferences and establish how the preferences were considered during the design process of the case studies
3. To identify the benefits of children's participation in the design of children's hospitals
4. To identify problems and issues associated with engaging children during the design process of children's hospitals

1.4 Contribution to knowledge

As it has been mentioned in section 1.2 lacks of empirical studies regarding the design process of children's hospital from the child's point of view is evident. The contribution of this research is in providing a better understanding of participatory design with children and young people in the context of hospitals. Such understanding aims to address the gap identified in the literature and practice between the hospital design process and the needs of its users, i.e. children.

From the practical point of view the novelty of this research is in providing guidelines, which supports project teams to define the process and tools for children's participation. Such guidelines can strengthen the capacity of designers, healthcare professionals and policy makers in engaging children during the design process of children's hospitals, and help in the creation of hospitals which better address children and young people's needs.

1.5 Research strategy

The research methodology employed case study approach, includes two case studies. As shown in Figure 1.2, this study was divided into four phases comprising: (a) design and definition; (b) data collection process; (c) data analysis; and, (d) conclusions. The study initiated by a review of the appropriate literature to identify the area of concern, research gaps and preliminary questions. This was a fundamental step to narrow the scope and aims of the study.

Case study is the most appropriate approach to satisfy the research aims and objectives of this study, as it aims to investigate a contemporary event within its real-life context. The main objective of this study is to gain empirically an in-depth understanding of the process, benefits and barriers affecting the engagement of children in the design of children's hospitals.

The research included two case studies, Royal Alexandra Children's Hospital and Royal Manchester Children's Hospital. The Research Governance and Ethics

Committee of the University of Salford granted approval for this research (see Appendix A). Data has been collected through a variety of tools, including: (a) 27 semi-structured interviews, including: designers, planners and NHS staff and focused on people's experience regarding the participatory design process of case studies; (b) document analysis, including corporate publications, public web sites, electronic mail and presentation material. Interviews were recorded, transcribed and analysed for theme and content.

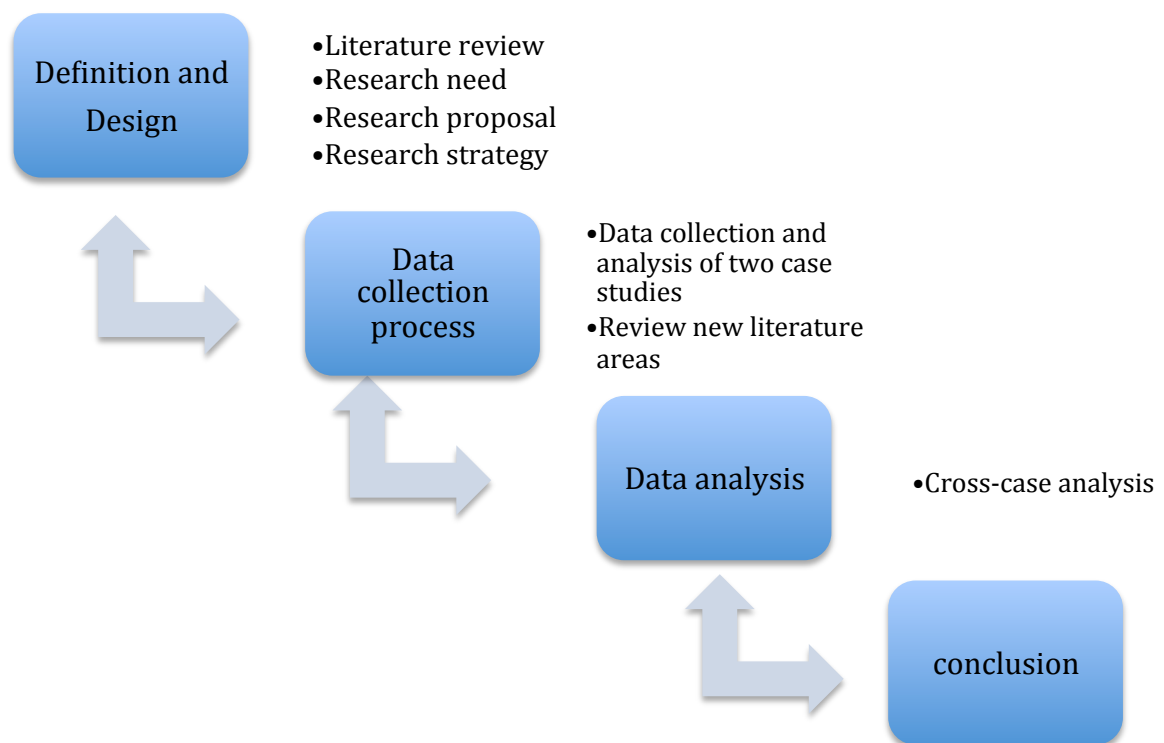


Figure 1.2 Outline research methodology

The data analysis was done through content analysis, using NVivo software. As Krippendorff (1969:103) states, content analysis includes “the use of a replicable and valid method for making specific inferences from text to other states or properties of its source”. Leedy and Ormrod (2001:155) further define this method as “a detailed

and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases”.

The above supported the development of the guidelines for supporting children’s participation in hospital design.

1.6 Structure of the thesis

Six chapters and an introduction compose the thesis and represent different phases of the work.

Chapter one is devoted to an introduction and briefly highlights the research problem, importance of the subject, its aims and objectives, relevance and contributions. It also outlines the research method adopted to reach the research results.

Chapter two deals with the literature review, exploring existing literature regarding process, methods, benefits, and issues of participatory design process and focuses ultimately on children and young people’s involvement during the design process of children’s hospitals. This chapter also established the development of the research questions.

Chapter three covers the research method in detail and the case study organisations. The chapter outlines the justification of research method, research philosophy, strategy, the techniques adopted and the validation aspects of the research.

Chapter four, five and six present the investigations of the case studies: Children’s Hospital A and Children’s Hospital B. It also compares of two cases in a cross case analysis and frames the results within of the research aim and objectives.

Chapter seven presents the proposed guidelines and discussing achievements.

Chapter eight presents the conclusion of the thesis, presenting the contribution to the knowledge, recommendations for future research and practice.

1.7 Summary

This chapter has presented an introduction for the research and explained the research problem, aim and objectives. The gap that exists in literature and also in practice of participatory design with children in a healthcare context was identified. A method, strategy and techniques for researching the problems and gathering data were also provided.

The next chapter describes the theoretical dimensions of the research by looking at the relevant literature.

2. LITERATURE REVIEW AND SYNTHESIS

2.1 Introduction

The previous chapter set out the research problem and its justification. This chapter presents relevant literature on the research areas being investigated. Gaps in the understanding of participatory design with children in a healthcare setting have been identified through a synthesis of the literature in the field.

This chapter is organised around three main areas: (a) children's wellbeing and the designed environment, which discusses why supportive design in healthcare settings is needed; (b) insights into participatory approaches and user involvement, and previous work on children's involvement in design; and (c) insights into the process, benefits, and problems of participatory design with children and young people in the design of children's hospitals.

2.2 Wellbeing and Health promotion

Buildings have recently become centre of attention for environment and health as their design have been influenced by social, technological and scientific progress (Cicco, 2004). Consequently building design aims to support people's health and wellbeing through prevention of risks related to environment and health (Smith et al, 2011).

The physical wellbeing of the occupant of the building and the design features of public buildings and institutions are correlated to a high degree. Accordingly, the W.H.O. aims to provide a comprehensive description for the wellbeing of the 'occupants of the building'. This point of view was emphasised by the W.H.O. in 1946 when it defined 'Health' as "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity".

Similarly, W.H.O expresses the importance of environment and its features as "environments are not just the visible structures and services surrounding us but have spiritual, social, cultural, economic, political and ideological dimensions as well. Furthermore, all the different facets of life are interwoven and inseparable".

Stokols (2000) states that prior to the 1970s the improvement of individual and population health was mainly focused on the medical treatment of disease. However, by the 2000s, wellness promotion has expanded to “encompass not only the immediate causes of morbidity and mortality but also the more fundamental determinants that reside in the political, social and physical environments” (Jamner and Stokols, 2000:1).

Three main orientations of research in health promotion, as described by Stokols (1996) follow:

1. *Behavioural change*, which concentrates on the modification of person health-related behaviour.
2. *Environmental enhancement*, which focuses on interventions to enhance physical surroundings through identifying environmental stressors and eradicating them, as well as providing environmental elements which support individual wellbeing.
3. *Social ecological approaches*, which concerns the recognition of the interrelations among environmental conditions and human behaviour and wellbeing.

Multiple interacting aspects of both the physical and the social environments coupled with personal factors influence wellbeing. The UK Coalition Government’s Public Health White Paper in 2010 defined wellbeing as “a positive physical, social and mental state”. Understanding this dynamic interplay between the factors involved, including environmental, biological or behavioural factors should be prioritised in this process, rather than examining these factors in isolation (Stokols, 1996).

A systematic review of the literature spanning 1974 to 1992 on child wellbeing was completed by Pollard and Lee (2003). They set out to find how child wellbeing was defined, what the domains of child wellbeing were, what were the indicators of child wellbeing and how child wellbeing was measured. Through reviewing 1658 studies, they found that despite the fact that wellbeing is a term that is commonly used, most research did not define it directly and therefore a consistent, unified definition of wellbeing is needed. In their systematic review, wellbeing was described as "a complex, multi-faceted construct that has continued to elude researchers' attempts to define and measure it". They also stated that one the useful definition of wellbeing

described by Columbo (1984) would be “a multidimensional construct incorporating mental/psychological, physical, and social dimensions” (p. 288). He defined five distinct domains of wellbeing as: the physical health, psychological, cognitive, social and economic domains of children’s lives. They conclude that there was a need for a core set of positive indicators of child wellbeing in each domain.

Pollard and Davidson (2001) had extracted an initial definition for wellbeing as:

“a state of successful performance throughout the life-course integrating physical, cognitive and social-emotional function that results in productive activities deemed significant by one’s cultural community, fulfilling social relationships and the ability to transcend moderate psychosocial and environmental problems. Wellbeing also has a subjective dimension in the sense of satisfaction associated with fulfilling one’s potential” (p. 10).

As it has been discussed by Aked et al, (2008), each action theme comprising these interventions: connect, be active, take notice, keep learning, give can positively enhance personal wellbeing by making a person feel good and by strengthening his/her mental capital (figure 2.1). Moreover, although they may not be wholly sufficient and good functioning but, as Aked et al, (2008: 13) argues “they play an essential role in satisfying needs for positive relationships, autonomy, competency and security... designed to promote their own positive feedback loops so they reinforce similar and more frequent wellbeing-promoting behaviours”.

To sum up, it is difficult to define wellbeing in general, and children’s wellbeing in particular. Studies of wellbeing have grown enormously within a wide range of disciplines, age groups, cultures, communities and countries, resulting in various definitions rather than a unified and consistent definition of wellbeing. It is often conceived as a model of child deficits rather than strengths and may lead researchers, policymakers, and practitioners to concentrate their efforts on children’s deficits rather than identifying and promoting children’s strengths (Pollard and Lee, 2003).

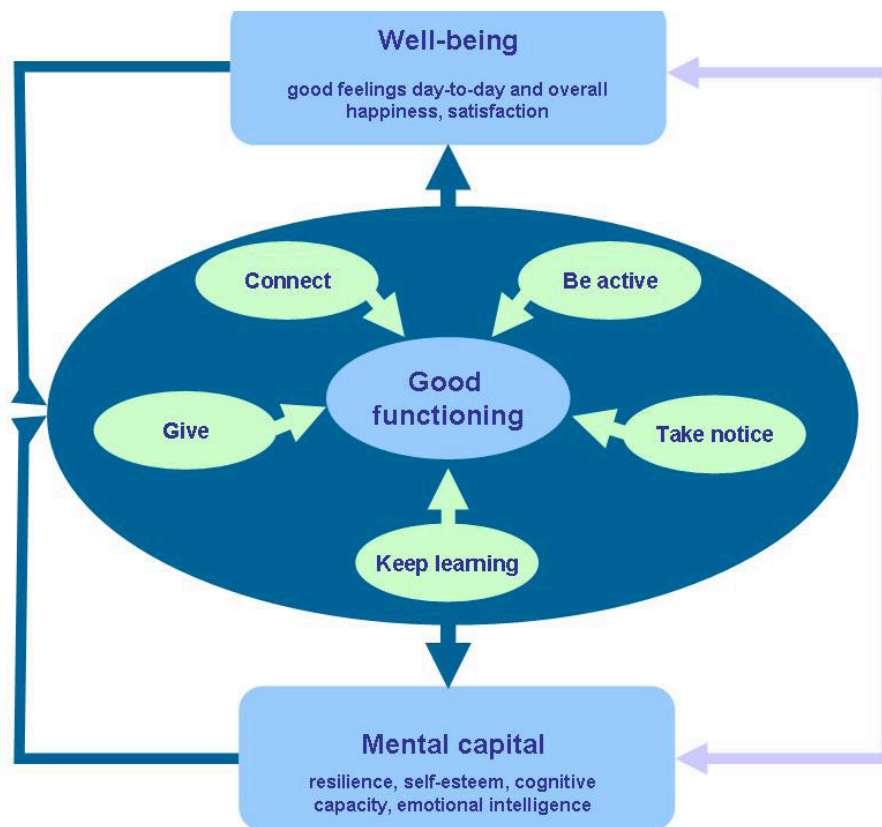


Figure 2.1: A model describing how the set of actions operates to enhance wellbeing(taken from Aked et al, 2008).

According to Bishop (2008) children’s feeling of wellbeing can be regarded as a fluctuating self-assessment, with three principal components including:

- Children’s capacity to feel comfortable (physically, socially and emotionally) in the environment.
- Children’s capacity to maintain a positive frame of mind for maximising positive and entertaining experiences.
- Children’s capacity to remain positively engaged to experience competence and empowerment.

Demos and the Green Alliance (2004) reflected these concerns in their report from a study of children’s attitudes towards their environment. 10-11 year old children around the UK were interviewed. The report identifies the differences in the quality of urban and rural children's natural environments. It also notes the ‘social’ nature of space and how children interact and understand their environment by exploring it themselves. The report emphasises the need for a stronger link between child wellbeing and environment in national policy, and better understanding of children’s

needs in the design of public spaces. The next section will elaborate the impacts of the physical environment in hospital on the healing process.

2.3 The Role of the Physical Environment in wellbeing

Several studies (e.g. Beauchemin and Hays, 1996; Devlin and Arneill, 2003; Lawson, 2003; Zeisel et al., 2003; Altimier, 2004; Joseph, 2006; Dijkstra et al., 2006, Codinhoto et al., 2008; Ignelzi, 2011; Nanda and Hathorn, 2012; Quan and Joseph, 2012) have been conducted to investigate how the factors, elements or components of the built environment influence patients' health outcomes.

The role of the environment in the healing process is of increasing concern among health care providers, environmental psychologists, consultants, and architects (Devlin and Arneill, 2003). 'Healing environment' is described by Malkin (2003) as "a physical setting and organisational culture that is psychologically supportive, with the overall goal of reducing stress in order to help patients and families cope with illness, hospitalisation and, sometimes, bereavement." Similarly, Ghazali and Abbas (2010: 64) have a "Healing environment" that "can be described simply as the overall environment (both physical and non-physical) created to aid the recovery process. In contrast to curing, healing is a psychological and spiritual concept of health. Since perception is also psychological, there is a likelihood of a relationship between healing and the physical environment".

The major benefits of the healing environment described earlier led to the 20th century which is witnessing a dramatic shift in healthcare philosophy from what Verderber and Fine (2000) describe as a paradigm of system empowerment to patient empowerment. Hospitals have turned from a function and medical process dominated institutional structure to patients' needs and wellbeing oriented structures (Verderber and Fine, 2000). Changes in hospital design have embodied the changes in models of care and medical technology (Shumaker and Pequegnat, 1989).

For the patient, the major issue described in literature relates to the patient's healing process when it comes to stress. Stress is well documented as a problem for the great majority of patients (Ulrich, 1991a). Ulrich's (1991b: 97) theory of supportive design

in healthcare settings encompasses the comprehensive assumption that “supportive surroundings facilitate patient’s coping with the major stress accompanying illness. The effects of supportive design are complementary to the healing effects of drugs and other medical technology, and foster the process of recovery”. Ulrich’s (1991b) theory of supportive design has defined two major sources of patient stress: one, which is their illnesses, and its repercussions, and the other which is the nature of the physical-social environment. Furthermore, he discussed that patient stress has a variety of negative psychological, physiological and behavioural effects on patient wellness (Ulrich, 1991a, 1991b, 1992b, 2000, 2001, 2003, 2008, 2013). The core of Ulrich’s argument is supporting patient wellness through minimising environmental stress. Eliminating environmental features and characteristics in healthcare facilities that are stressful, or can have direct negative impacts on outcomes, is the first major step towards the supportive design (Ulrich, 1991, 1997, 1999).

Ulrich’s (2000) defines the advantages of supportive design as:

- Reduced stress/anxiety for patients and family
- Reduced pain
- Improved sleep quality
- Lower infection occurrence
- Improved patient satisfaction
- Benefits for employees
- Cost savings by improving medical outcomes

The relationship of the built environment and the healing process are described. The major issue in the healing process has been identified and focus is given to impact of supportive environment to the healing process. Following this, the espoused importance of user involvement in providing the supportive environment is set out.

2.4 Approaches to user involvement

Although the understanding of users needs and perspective is the main indicator of user satisfaction, a clear definition of user involvement is still missing (Kujala, 2003). User involvement is defined by Wilson et al (1997) as ‘focus on users’, by Heinbokel et al. (1996) as ‘participation of users’ and by Noyes et al (1996) as ‘consulting end-

users'. Kujala (2003) describes it as 'direct contact with users and covering many approaches'. Involve, the organization responsible for promoting patient and public involvement in the NHS, describes the involvement as: "An active partnership between the public and researchers in the research process, rather than the use of people as the 'subjects' of research. Active involvement may take the form of consultation, collaboration or user control. Many people define public involvement in research as doing research 'with' or 'by' the public, rather than 'to', 'about' or 'for' the public." (INVOLVE, 2004).

Kujala (2003) classifies four main approaches to user involvement for design in general: user-centred design, participatory design, ethnography, and contextual design (Table 2.1). She defines the goal of user-centred design as "development of useful and usable products".

Table 2.1 User involvement approaches. (Kujala, 2003:3)

	User-centred design	Participatory design	Ethnography	Contextual design
Emphasis	Usability	Democratic participation	Social aspects of work	Context of work
Typical methods	Task analysis, Prototyping, Usability evaluations	Workshops, Prototyping	Observation, Video-analysis	Contextual inquiry Prototyping

Two main principles have been suggested in order to peruse the idea of user involvement:

- First of all, as it is recommended by Gould and Lewis (1985), direct communication of the design team with potential users, rather than using intermediaries to hear or read about them.
- The second principle implies that intended users should be able to use simulations and prototypes to carry out real work in early stages of the

development process and their feedback and views should be observed, recorded and analysed (Kujala, 2003).

According to Floyd et al. (1989) and Ehn (1993), participatory or co-operative design is an approach of Scandinavian origin. Designers and workers have collaborated on understanding users through users' direct involvement in the design and decision making process (Luck, 2003). The main features of participatory design with some theorists and practitioners are democratic participation and skill enhancement, (Ehn, 1993) whereas others emphasis effective knowledge acquisition and product quality (Muller and Kuhn, 1993). Therefore, the applicable definition is formulated according to the participation.

2.4.1 A definition of participation

Participation is defined in the dictionary as “The act of taking part or sharing in something” which determines the process of taking part or sharing without any outcomes or result of such a process (Tisdall and Liebel, 2008).

Moreover, Hart defines participation as: “the process of sharing decisions which affect one's life and the life of the community in which one lives” (1992: 5).

Notwithstanding such a broad definition for “participation”, it is different from being listened to or being consulted, it is also about effecting decision-making and change (Sinclair, 2004). “Today it's not “*business as usual*” anymore. The rules have changed and continue to change. The new rules are the rules of networks, not hierarchies. People are cynical about the methods and goals of consumerism. The users of products, interfaces, systems, and spaces are realising that through networking they have an enormous amount of collective influence. They are beginning to use their influence to get what they want, when they want it and how they want it. The new rules call for new tools. People want to express themselves and to participate directly and proactively in the design development process.” (Sanders, 1999:2).

According to Feinstein, Karkara, and Laws, (2004) children and young people can participate individually or in organised groups by speaking out, being involved in

decision-making and practical action. Children's rights and the definition of children's participation are described as follows.

2.4.2 Children's participation

The United Nations Convention on the Rights of the Child (1989) defines a child as "every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier". Children and Young People Act 2008 defines child as a person who is under 12 years old and young person as a person who is 12 years old or older, but not yet an adult.

The idea that children and young people should be more involved in decision-making is becoming popular (Dixon-Woods et al., 2002; Department of Health and Department for Education and Skills, 2004; Darbyshire et al., 2005; Coyne, 2006; Horstman et al., 2008; Gibson et al., 2010). The United Nations Convention on the Rights of the Child (UNCRC) in 1989 sets out children's rights to provision, protection and participation. As expressed by Lansdown (1994) the provision articles indicate the social rights of children to minimum standards.

Article 12 of the Convention (the right to be listened to and to be taken seriously) makes a strong call for children's participation:

States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.

It goes on to argue in Article 13 (the right to freedom of expression) that:

The child shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of the child's choice.

The Convention also states the need to provide support and protection for children's participation, Articles 12 and 13 go well beyond this. Unfortunately, it also goes well

beyond what many families in most cultures would allow of their children, as the family is not, of course, the sole, although it is the primary, agent in a child's socialisation and is recognised as such in the preamble to the Convention:

Convinced that the family, as the fundamental group of society and the natural environment for the growth and wellbeing of all its members and particularly children, should be afforded the necessary protection and assistance so that it can fully assume its responsibilities within the community.

With regard to participation of children, participation can be defined as engagement of girls and boys in decision-making. They are also engaged in processes that not only affect their own lives but also affect their family's and community's lives (Feinstein, Karkara, and Laws, 2004).

Influential writers on children's participation try to include both process and outcomes in definitions (Tisdall and Liebel, 2008). Lansdown defines participation as "children taking part in and influencing processes, decisions, and activities that affect them, in order to achieve greater respect for their rights". (2002: 273)

Participation can be 'public' or 'collective' decision-making, which is in contrast to a child's participation in 'individual' decision-making. The 'individual' decision-making is "decisions about his or her own individual life" (Tisdall and Liebel, 2008). 'Public' or 'collective' decision making goes beyond the individual, ranging from formal mechanisms, to more informal collectivities aiming to change services or policies (Tisdall and Liebel, 2008).

To support children's participation in decision-making and processes adults can play an important role through encouraging children's involvement, sharing information, modelling participatory behaviour, developing and enhancing the skills that are required for participation and creating safe environments for children to experience and practice participation (Feinstein, Karkara, and Laws, 2004). The next section will discuss the main principles of children's participation in general and in the healthcare environment.

2.5 Main principles of children's participation

Qualitative methods can be seen “as having the potential for most intrusion and hence being the most ethically precarious” (Morrow and Richards, 1996:102) which determines the importance of addressing ethical dilemmas in qualitative research. Notwithstanding in research investigating sensitive topics, but even studying less important issues, questions of ethics appear (Bishop, 2008). In order to conduct ethical research with people it is necessary to address issues including: consent, deception, privacy and confidentiality (see e.g. Sieber, 1992; Christians, 2000). Accordingly, when conducting ethical research with children, certain special dimensions in these issues, as well as some additional questions could be created which should be dealt with.

Alderson and Morrow (2004) have outlined ten topics around adults consulting children, to help them to check the ethical questions and standards of their work. These include:

- the purpose of the work
- possible costs and benefits
- respecting privacy and confidentiality
- decisions about which children to involve or exclude
- funding
- planning and revising research aims and methods
- informing the children and adults concerned
- consent
- reporting and using the findings
- the possible impact on children

Alderson (1995) stated that providing age appropriate leaflets for children and young people (Figure 2.2 and Figure 2.3) about the project, would help them to understand the nature of a project, ask the salient questions, and take part in the process rather than simply being its objects of study.

Participant Information Sheet for participants aged 7-11 years

Research Project: The Children's Hospital Westmead Participant Information Sheet



Hi!

My name is Kate and you are being asked if you would like to take part in my research project. This sheet will give you information that will help you decide whether you would like to take part.

What's it all about?

I want to know how kids themselves feel about the hospital and what they would like designers to know when they are designing hospitals for kids in the future.

In this project I am asking kids what they think about the hospital environment. Things like what they like or don't like about the hospital? Where they have been in and around it? What they did in each place?



How can I help?

You can help by telling me all about your time in hospital. Whatever you tell me will not be told to anyone else.

What will I be asked to do?

If you decide to take part I will ask you to talk with me for half an hour. We will start by looking at some photos of the hospital and you can tell me if you have been to the places in them so that I can make a map of where you have been in the hospital. After that I will ask you a few more questions about your time in hospital and finally, I will also ask you to complete a small game. Your answers will be recorded on a tape recorder so that I can listen to them again later. The best part is that there are no wrong answers!



Who can I talk to about it?

Take some time and talk about it with your family or friends. You can ask me *any* questions you like about the project. Just remember you don't have to do this and no one minds if you decide not to, and if you change your mind during the interview you can pull out at any time. Keep this sheet in case you want to call me. My phone number: [Kate Bishop 0407 454 261](tel:0407454261)

Figure 2.2 participant information sheet for participant age 7-11 (taken from Bishop, 2008)

Participant Information Sheet for participants aged 12-19 years

Research Project: The Children's Hospital Westmead Participant Information Sheet



Hi, my name is Kate and you are being asked if you would like to take part in my research project.

This sheet will give you information which will help you decide whether you would like to participate.

What's it all about?

I want to know how children and young people themselves feel about the hospital environment, so that this can influence how designers think about designing paediatric hospitals in the future.

In this project I am asking participants questions about the hospital environment. Including subjects such as what they like or don't like about the hospital? Where they have been in and around it and why they went there? What did they do in each place?

Your identity and everything you tell me will be kept totally confidential.

What will I be asked to do?

If you decide to take part I will ask you to talk with me for up to an hour. We will start by sorting through some photos of the hospital. You will be asked to say which areas you have been to so that I can make a map of where you have been in the hospital. After that I will ask you a few more questions about your time in hospital and finally, I will ask you to complete a sorting task. Your answers will be recorded on a tape recorder so that I can listen to them again later. There are no wrong answers. I am just seeking your opinion on the hospital environment.

Who can I talk to about it?

Take some time and talk about it with your family or friends. You can ask me *any* questions you like about the project. Just remember your participation is voluntary and no one minds if you decide not to participate, and if you change your mind during the interview you can pull out at any time. Keep this sheet in case you want to call me. My phone number: Kate Bishop 0407 454 261



Figure 2.3 participant information sheet for participant age 12-19 (taken from Bishop, 2008)

According to NRES (2011) consent requires a full explanation of the inquiry and a child's agreement requires a clear and comprehensible explanation, as it will be sought from the parent. Similarly, an information sheet should be designed according to the different age ranges of participants to suit their comprehension and development.

If children are informed and autonomous during the process, the following awareness could be achieved (Kumpunen et al, (2012):

- Children's uniqueness and differing capabilities.
- How the power relationship may influence children's participation.
- How different studies could require researchers to be engaging in particular methods (National Children's Bureau (NCB) 2003).

The NCB (2006:17-18) further suggested in order to establish an informed consent in a process the following questions should be satisfied:

- “ Have children been given all the information about the research that they need to make a decision to participate?
- Do children understand the information they have been given – in particular, how are very young children, children with learning disabilities, or children with communication problems to be informed and their consent gained?
- Are children clear that they can agree or refuse to take part - without any adverse consequences?
- Are children clear that they can withdraw at any point without adverse consequences?
- Has the researcher agreed a signal with the child to enable them to withdraw easily?”

Despite these guidelines, gaining access to children and young people in the design of a healthcare project still can be difficult in as it needs permission from many levels of 'gatekeepers' (Hood, et al., 1996; Stalker, et al., 2004).

As Bishop (2008) argues, from experiences gained in participatory research with children and young people in a healthcare context it is possible to identify the milestones in conducting participatory research in a healthcare setting. These include:

- A hierarchy for 'gatekeepers' to access children in hospitals which is difficult

(Stalker et al., 2004)

- Ethical considerations and empowering children in the research process (Alderson, 1993, 1995; Bricher, 1999, 2000; Morison et al., 2000)
- The social and physical context of the interviews and the need for privacy (Coyne, 1998; Mauthner, 1997; Miller, 2000; Morison et al., 2000)
- The nature of the research topic for participants and its perceived benefits and threats (Morison et al., 2004)
- The influence of parents on children's participation (Morison et al., 2004; Sandbaek, 1999)

The main principles for achieving children's participation have been outlined. Hence, the next two sections will elaborate children's participation in design process in particular classical and co-design approaches.

2.6 Participation in design

In 1996, Reich et al. described “varieties and issues of participation and design” criticising traditional designs approaches. The authors demonstrated the traditional design as “situation, (where) user needs are 'thrown over the wall' to the designers whose response - the design - is then 'thrown over the wall' to downstream experts (e.g., manufacturers, sellers) till it reaches the customer or the end-user.”(P.167) . The same authors further highlight that in traditional design active user involvement comes after the design process is over.

Reich et al (1996), interpreted the term ‘design’ as “any purposeful activity aimed at creating a product or process that changes an environment or organization” and ‘participation’ as “a prima facie right of all people potentially affected by a design.”(p.166)

Figure 2.4 represents the relationship between actions and need, suggested by Sanders (1999). The needs induced from participatory design are based on tacit knowledge,

knowledge that cannot readily be expressed in words, whereas the user needs collected from conventional methods are based on explicit knowledge or observable behaviour (Sanders 1999). Traditional design research methods were focused primarily on observational research and whereas the new tools are focused on how people express their thoughts, feelings and dreams using different toolkits (Sanders 1999).

what people:

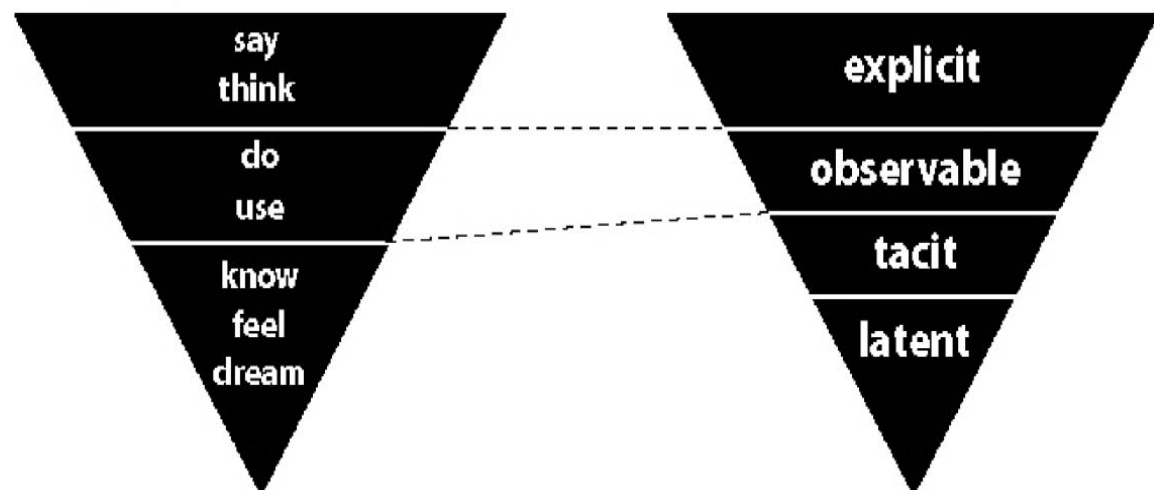


Figure 2.4 the relationship between action and need (Sanders 1999)

Participatory design has been discussed, for several decades, at least since the 1960s (Devereux, 1960; Sanoff, 1973). During this time there has been a maturation of the subject and dramatic shifts in the field which result in recognising participatory design as a process with many approaches and techniques (Luck, 2003).

A participatory design approach engages people in a participatory design process and consequently they will be part of the social process of design and play an active role in the issues raising, discussions and decision making processes that are part of the early design stage of a project (Reich et al, 1996). Reich et al (1996) acknowledged that active participants in the design process are the people who are commonly known as the 'users' and effective participation requires continuous commitment.

Horelli (1994), through literature review found that 'children and participation' was a popular theme in the 1970s. The Washington Environmental Yard project is one of the participatory designs, involving both children and adults in design (Moore, 1978).

During the 1980s, there were some examples of direct participation projects by children (Hart, 1987; Baldassari et al. 1987).

Sanders and Stappers (2008:8) described the roles of player in the design process of the classical user-centered and co-design (see Figure 2.5) as follows:

In the classical user-centered design process, “the user is a passive object of study, and the researcher brings knowledge from theories and develops more knowledge through observation and interviews”. The designer then passively receives this knowledge or report, which can lead to ideas, concepts, etc. In a co-design process however, the roles get mixed up: “the person who will eventually be served through the design process is given the position of ‘expert of his/her experience’, and plays a large role in knowledge development, idea generation and concept development”. The next section will describe the co-design process in more detail.

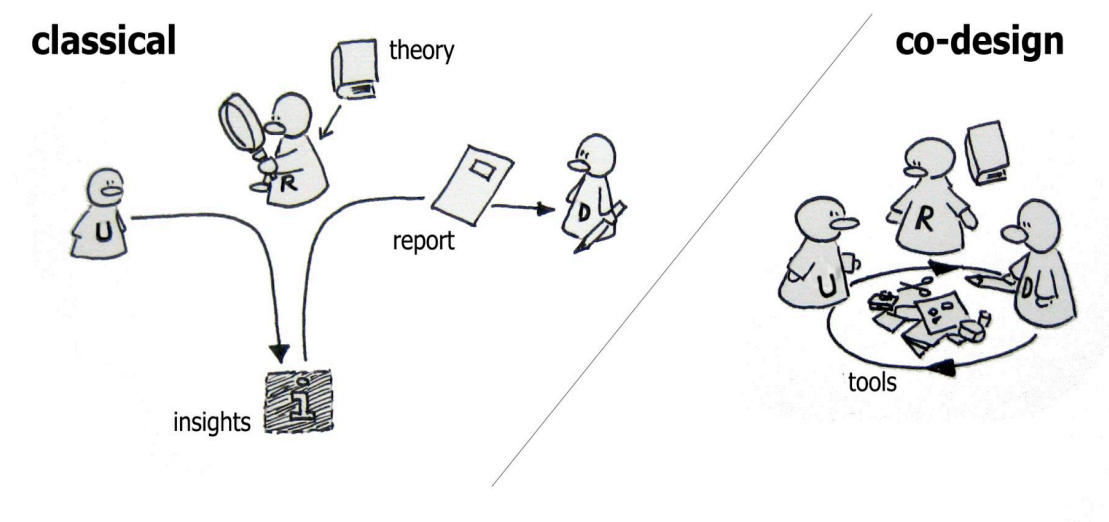


Figure 2.5 Classical roles of users, researchers, and designers in the design process (on the left) and how they are merging in the co-designing process (on the right), taken from Sanders and Stappers (2008)

2.6.1 Co-design

Collaboration and communication problems during design in multidisciplinary teams are now understood by the design research community (e.g. Cross and Clayburn Cross, 1995; Bucciarelli, 1996, 2002; Badke-Schaub and Frankenberger, 1999; Badke-Schaub et al., 2007). The collective or collaborative part of the design process,

which is called co-design, is defined by Kleinsmann, and Valkenburg, (2008:370) as: “ the process in which actors from different disciplines share their knowledge about both the design process and the design content.” The goals of the co-design process are knowledge creation and integration (Kleinsmann and Valkenburg, 2008).

Active involvement in the design processes can provide valuable opportunities to improve a range of skills such as team working, project management, communication, collaboration, design, creativity, discussion, debating, presenting arguments and decision making (Rudd and Futurelab, 2008). It also can offer opportunities to obtain knowledge of the use of various tools, mechanisms and resources that might be employed throughout the various aspects of design (Rudd and Futurelab, 2008). Engaging children in participatory co-design can lead to positive outcomes. For example, the British Council for School Environments (BCSE) and Schoolworks, promote participatory and co-design approaches in school designs (Rudd and Futurelab, 2008). They tend to provide better understanding and delivering of learning opportunities as well as increasing the chance of having more sustainable and relevant designs.

The role of co-design became significant within state schools in the 1970s and 1980s'. A spirit of independence amongst head teachers and the tradition of field study was identified by Hart (2002), which helped to carry out these projects that were encouraged by the government for public participation (p.17).

As an example of school children undertaking research to map their local environments, the 'Urban Studies Centres' of the 1980s engaged in series of discussions with residents about planning issues. Through these participatory projects young people were recognized as a stakeholder group within the education unit of the Town and Country Planning Association (TCPA), which has helped to validate this work (Frank, 2006).

Thanks to participatory school design, through the trend of large-scale school design 'competitions' in the USA, Australia and the UK during the 2000s, a more recent area of focus has been provided. It intends to support the achievement of educational goals for students whilst providing opportunities for architecture and design graduates to

share knowledge and obtain experience of participatory practice (Parnell, 2010). These Main features manifest themselves in large-scale redesign of schools in the UK such as Building Schools for the Future and School Works. The benefits of participatory design with children and young people as a way to improve the health care environment for young patients are described below.

2.7 Expected Benefits of Participatory design with Children and Young People

Important features of participatory design highlighted in the literature include (Ecorys, 2011): 1) participant outcomes, 2) impacts on spaces and places, and 3) impacts on communities. The following sections focus on these features in more detail.

2.7.1 Participant outcomes

The direct personal, social and educational benefits for the participant (the children and young people who are involved, and others directly working with them) are one of the outcomes of participatory approach. There is a large volume of published studies describing the role of participatory design on the empowerment of users, as one cornerstone of the involvement of users (e.g Gould and Lewis 1985; Gulliksen et al. 2003; Correia and Yusop, 2008). According to Correia and Yusop, (2008:214) participatory design is 'user's democratic participation and empowerment at its core'.

With regard to the empowerment of users, the collaborative relationship between users and designers plays an essential role (Gould and Lewis 1985; Gulliksen et al. 2003). As a major principle in participatory design, all goals and designs are not pre-assumed either by users or designers and are jointly negotiated (Blomberg and Henderson 1990). Promoting democracy through empowerment of users has large effects on their social life, which can lead to sustaining a healthy society. Allowing the users to have an active role in decision-making gives them a sense of ownership (Cherry and Macredie, 1999).

2.7.2 Impacts on spaces and places

A positive effect on the development of better solutions, which would be supportive of users and more sustainable in the long run, during the building's life cycle, is considered as one of the main reasons for involving users in the design process.

Children and young people can directly influence the actual physical shape of spaces and places. Involving users may impact on the quality of services by making them more 'user-friendly', more accessible and more acceptable to users (Crawford et al, 2003).

Key aspects of the physical environment are often grouped in three categories: the ambient environment, architectural features and interior design features (Harris et al., 2002), briefly described as follows.

Ambient Environment

The possible satisfaction or dissatisfaction for patients may have a direct link to ambient environmental features such as lighting, noise levels, air quality and odours and temperature (Fottler et al., 2000; Harris et al., 2002).

Moreover, stress can be caused as a result of uncontrollable or unpredictable extreme environmental conditions (Evans, 1982; Evans and Cohen, 1987). Some design features such as individual thermostats and dimmer switches that allow patients to have more control over the ambient environment minimize these sources of stress and also enhance satisfaction for the hospital environment.

Architectural Features

According to Harris et al., (2002) architectural features have been defined as relatively permanent aspects of the hospital environment and include the plan or layout of the hospital, the size and shape of rooms, the placement of windows, number and kinds of facilities and amenities and having access to views, nature and outdoor areas.

Interior Design Features

According to Harris et al, (2002), interior design features are defined as less permanent aspects of the hospital environment, such as furnishings, non-medical equipment (e.g., televisions, telephones), colours, finishes, artwork and the layout of furnishings in hospital rooms.

As Shumaker and Reizenstein (1982) noted, both type and layout of furniture and equipment can influence patient experiences (see also Zimring et al., 1987; Carpman and Grant, 1993; Fottler et al., 2000;). However, there has been very little research concentrating on the interior design features of hospitals (Harris et al, 2002).

The inclusive effect and influence of children's perception on the design of the built environment of the hospital may create a child-friendly environment. "This is an environment that children and young people perceived as being 'good for kids' which means that it is perceived as welcoming, comfortable and appropriate for children and young people." (Bishop, 2008:264) Improved user satisfaction and promoted acceptance of the new environment are a result of better overall quality that has been achieved through more relevant requirements and through the versatile expertise that has contributed to the design of the product (Muller ,1992; Damodaran ,1996; Cherry and Macredie ,1999; Kujala , 2003; Nousiainen 2008).

2.7.3 Impacts on communities

Children's participatory planning can help to improve relationships between different generations and social groups. For example, Haider (2007) emphasises that certain design features are more effective at encouraging children and adults to interact within public spaces, and should therefore be supported.

Often individual small-scale projects reflect the attitudes and relationships between children and adults that have been supported at a neighbourhood level (Percy-Smith and Malone, 2001). The Ministry of Social Development (2003) expresses the benefits of children participation in decision-making as follows:

- encouragement to co-operate between different age groups in the community
- strengthening the benefits and the value of participation
- creating a positive, democratic community

It is here benefits of participatory design with children provide indications as to why designers, policy makers and healthcare professionals should involve children and young people in the design process. The next section synthesises the main theories and models proposed within the literature about participation.

2.8 Theories of Participation

Theories describing community participation have been centre of attention and a source of debate in recent times. This section aims to gather an overview of the theories to increase understanding and evaluate the participation structures and practices.

Arnstein's (1969) seminal theoretical work on the subject of community participation was the key document that shaped the theoretical framework for participation. Arnstein's "A ladder of Citizen Participation" presents different level of participation, from manipulation to citizen control (see Figure 2.6).

1 Manipulation: Through citizen participation, people are placed on advisory committees or advisory boards for the express purpose of "educating" them or engineering their support. This rung of the ladder emphasises the distortion of participation into a public relations vehicle by power holders.

2 Therapy: Group therapy is masked as citizen participation, when its aim is to cure or educate the participants. As Arnstein (1969:369) describes the therapy "...it is in this area where the public would be "educated" to participate in advisory committees or boards for the purpose of engineering their support". The proposed plan is best and the job of participation is to achieve public support by public relations.

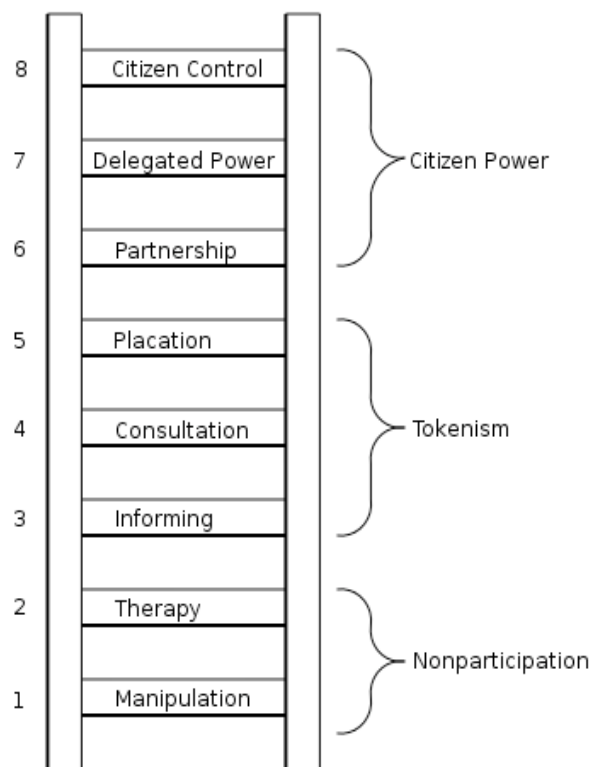


Figure 2.6 Ladder of participation (Arnstein, 1969)

3 Informing: At this stage citizens are informed of their rights, responsibilities, and options, which can be the most important first step toward legitimate citizen participation. However, too frequently the emphasis is on a one way flow of information which provides no channel for feedback and no power for negotiation.

4 Consultation: Inviting citizens' opinions using most frequent methods such as attitude surveys, neighbourhood meetings and public hearings can be a legitimate step toward their full participation. If consulting them is not combined with other modes of participation, this rung cannot provide any assurance that citizen concerns and ideas will be taken into account.

5 Placation: At this level citizens begin to have some degree of influence although tokenism is still apparent. For example, placing a few hand-picked "worthy" poor on boards of Community Action Agencies or on public bodies like the board of education, police commission, or housing authority can let citizens advise or plan ad infinitum but retain for power holders the right to judge the legitimacy or feasibility

of the advice.

6 Partnership: At this rung of the ladder, power is in fact redistributed through negotiation between citizens and power holders with whom they tend to share planning and decision-making responsibilities through joint policy boards, planning committees and other mechanisms.

7 Delegated power: At this level, citizens hold the significant cards to assure accountability of the programme to them and power holders need to start the discussion process, rather than responding to pressure from the other end.

8 Citizen Control: The degree of power (or control) which guarantees that participants or residents can govern a programme or an institution is highly demanding, as it makes it possible to negotiate the conditions under which "outsiders" may change them.

Various models of participation have been further developing towards specific objectives from Arnstein's model over several years (Burns et al 1994, Treseder 1997, Wilcox 1999, Sutton and Kemp 2002). Burns et al (1994) proposed a new ladder by modifying Arnstein's ladder of participation, which seeks to maximise the power of citizens. This ladder attempts to incorporate the degree of participation and quality of engagement, while Wilcox's (1999) ladder identifies five rungs that reflect various levels of community participation (Table 2.2): Information, consultation, deciding together, acting together, supported independence.

Table 2.2 A ladder of participation (Wilcox, 1999)

Information
Consultation
Deciding together
Acting together
Supporting individual community initiatives

Tritter and McCallum (2006) however, have criticized the ladder of participation with relation to the health service in the UK.

“A linear, hierarchical model of involvement – Arnstein’s ladder – fails to capture the dynamic and evolutionary nature of user involvement. Nor does it recognise the agency of users who may seek different methods of involvement in relation to different issues and at different times. Similarly, Arnstein’s model does not acknowledge the fact that some users may not wish to be involved” (Tritter and McCallum’s, 2006: 165).

Three key aspects of the ladder that are criticized are as follows; first, the hierarchical nature of the participation with the ultimate goal of participation as citizen control which does not necessarily convey the participant’s own reason for involvement (Collins and Ison, 2006). The second aspect is that non-participation and citizen control are correlated to a high degree. As Bishop and Davis (2002) note a linear notion of participation indicates only the reaction and behaviour of the actors varying from level to level while the policy problem remains the same. Furthermore, the nature of the policy issue can be determined in the process of participation, which can lead to shaping the nature of the participation process itself. The third aspect of criticism is with regard to what we define as the roles and responsibilities of participants including the individuals, communities and authorities (Collins and Ison, 2006). Arnstein’s ladder intimates that the roles and responsibilities of participants can only be changed relative to levels of power from citizens to authorities (Collins and Ison, 2006). They also state that this ignores more complex sets of relationships in many ongoing participatory processes where roles and responsibilities are not easy to define and they may have different meanings throughout the participatory process.

2.8.1 Ladder and levels of children’s participation

A number of studies have modified Arnstein's ladder for working with young people (see for example; Hart 1992, 1997; Thornburn, et al., 1995; Treseder 1997, Shier, 2001). Hart's 'ladder of children's participation' (1992, 1997) is one of the most well known models. Figure 2.7 describes the non-participation and participation of children in projects through some examples. Hart’s ladder includes eight rungs: 1) Manipulation, 2) Decoration, 3) Tokenism, 4) Assigned but informed, 5) Consulted

and informed, 6) Adult-initiated, shared decisions with children, 7) Child-initiated and directed, and 8) Child-initiated, shared decisions with adults. These are described as follows:

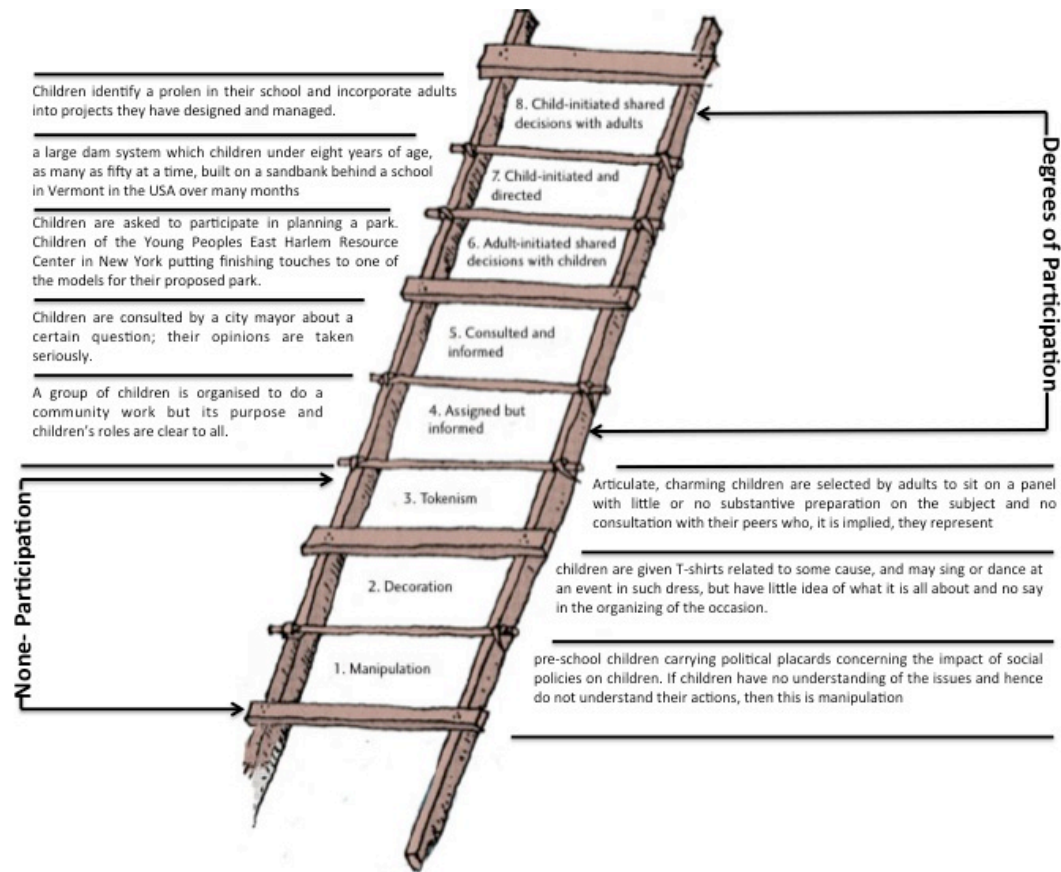


Figure 2.7 Hart's Ladder of Participation (Hart, 1992)

Manipulation: The first rung on the ladder, manipulation, happens when children and young people are used by adults to support causes where they do not understand their actions.

Decoration: Decoration is the title of the second rung, as children and young people are used at this level to bolster a cause in an indirect way while they may have little idea of what it is all about and even no say in the organizing of the occasions.

Tokenism: Tokenism occurs when children and young people are given a voice, but have little or no choice about what they do or how they participate.

Assigned but Informed: The fourth rung of the ladder of participation is known as ‘Assigned but Informed’. At this step users get information which was previously obtained from them and are informed about how and why they are being involved which helps them to take a specific role.

Consulted and Informed: At this level children and young people work as consultants for adults on projects or programmes, which are designed and run by adults, but the children are informed about the process and their opinions are treated seriously.

Adult Initiated, Shared Decision with Children: The sixth rung of the ladder happens when adults initiate the projects but the decision-making is shared with the young people.

Child Initiated and directed: The seventh rung of the ladder happens when young people initiate and direct a project or programme and the role of the adult in this situation is a supportive role.

Child Initiated, Shared Decision With Adults: The last rung in the ladder of participation occurs when young people initiate projects or programmes and decision-making is shared between young people and adults.

These definitions have been used in a number of studies (Treseder, 1997; Matthews, 2003; Chawla et al, 2005) and have been adapted specifically to the context of children and young people's participation in planning and the built environment. Some of them can be summarised as follows:

- Based on children and young people’s participation in UK regeneration programs, four different levels of community action have been proposed by Matthews (2003), ranging from ‘dialogue’ (listening to young people), through ‘development’ (adults working on behalf of young people in their interests), ‘participation’ (young people working within their communities), and ‘integration’ (young people working with their communities) (p.268). The characteristics of higher-level participation whilst differing from Hart's model



Figure 2.8 Treseder's (1997) model of children's participation

in many respects, remain focused on shared decision making between children and adults for joint benefit.

- Four main levels or 'forms' of participation identified by Chawla et al (2005) which were obtained through the international Growing up in Cities (GUIC) projects programme in the 1990s. These include: 1) developed and implemented by children, 2) facilitated by adults with children, 3) community events which were organised by adults and participated in by children, and 4) actions organised by adults and using the work of children.
- Treseder's (1997) model (Figure 2.8), which is adapted from Hart's ladder, displays the five degrees of participation in a circular layout. The forms of non-participation have been stripped out in this model. Treseder redesigns Hart's model in this way to respond to some of the most frequent criticisms of the ladder. Firstly, it is designed in circular layout to step away from a progressive hierarchy and secondly, Treseder argues that all five degrees of participation should be regarded equally and there needs to be no limit to the involvement of children and young people.
- The 'Pathway to participation' model (Figure 2.9) by Shier (2001) built on

Hart's ladder is made of 15 ordered questions based on five levels of participation: 1. children are listened to; 2. children are supported in expressing their views; 3. children's views are taken into account; 4. children are involved in decision-making processes; 5. children share power and responsibilities for decision-making (IAWGCP, 2008). Shier asserts that there are three stages of commitment at each level of participation. The model is useful for practitioners as individuals and organisations can use these questions to assess themselves to see which levels and stages they are at (Shier, 2001).

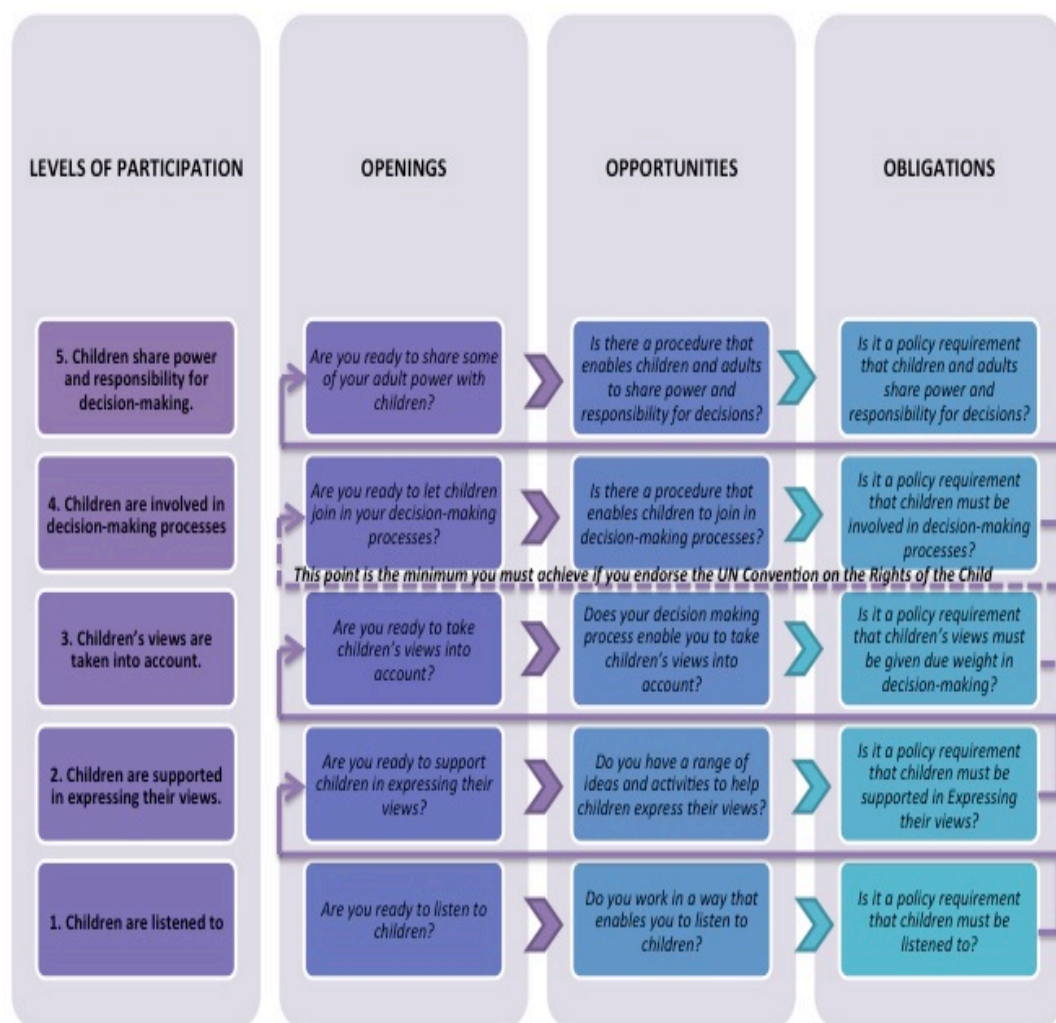


Figure 2.9 Pathway to participation' model by Shier's (2001)

2.8.2 Discussion

Notwithstanding the usefulness of the model of participation in many settings, it has also been the focus of critical investigation (Thomas 2000, Lightfoot and Sloper 2001, McAuley and Brattman 2002, Reddy and Ratna 2002). There are a number of factors that affect the extent of children's participation. For example, participation of a child varies greatly with his development: a preschool child might be able to carry materials to a playground building site, whereas an adolescent may be capable of overseeing the entire building operation. Moreover, it is not necessary that children always operate on the highest possible rungs of the ladder.

The usefulness of this model is limited by using the image of a ladder with a hierarchy of characteristics as it implies that participation at the higher levels is more valuable than on the lower rungs (Dorrian et al, 2000; Sinclair, 2004). According to Lightfoot and Sloper (2001) the model fails to notice the importance of context and it is naive when applied. It is assumed that Hart's ladder of participation, like Arnstein's ladder, does not consider the key factors in user involvement, which can be described as method, categories of user and outcome. Different methods of user involvement are required, especially when the users are children and the project is about a hospital. Furthermore, the model doesn't describe different categories of user involvement. For example, as long as the child or young person has had the opportunity of making the choice about whether they wish to participate or not it can be assigned as form of participation or in other words non-participation can be a form of participation (Treseder, 1997).

Shier's model also suggests a hierarchy in which levels one, two and three must be achieved before participation can happen. Therefore, it does not acknowledge the different degrees of participation for children and young people (2001).

Treseder's model goes somewhat further in displaying the complex nature of participation. As the degree of participation with the most benefit in a specific environment is selected, the flexibility of the model in a participatory process can be narrowed. Therefore, from these models it can be concluded that participation can have different meanings in different contexts and that no one model can be employed across all settings and to all processes. Each model may be appropriate to adopt in

different contexts and processes as each has its own strengths and limitations (Moules and O'Brien 2012).

2.9 Phases of the building Process

Any organisation, which starts a large project, can reduce that project into small, manageable parts. Most building projects can therefore be organised into following six distinct phases:

1. Planning which includes “wish list” considerations, master planning, and predesign efforts.
2. Schematic design, which involves drawing a rough outline of the project.
3. Design and development, which includes adding details to the design.
4. Construction documents, which require converting all aspects of the design into a template.
5. Construction, is the phase in which the building or facility is actually built.
6. Commissioning which before taking ownership of a building, project, or renovation, an organization must make sure that all specifications are met and that all systems, components, equipment, and so forth are fully operational.

Different phase of the building process are described. The next section synthesises the Existing guideline for involving children and young people proposed within the literature about participation.

2.10 Existing Guideline for involving children and young people:

The National Service Framework for Children, Young People and Maternity Services (2004), Every Child Matters (2003) and the United Nations Convention on the Rights of the Child (1989) as well as review of the NHS by Lord Darzi (2008) have identified the importance of participation by children and young people as a core principle and formulate following guidelines in involving children and young people:

- “Why you are involving the children and young people” and “what you are seeking

to do through involvement” are common types of questions that are asked while carrying out any involvement with children and young people. It can help to set clear aims and goals that can be monitored and measured.

- Before initiating any participation activities, organisations should have a clear picture of the information that they hold and might be given through out the process. This will help to have participation activities be planned sensibly and appropriately in advance.

- The process of participation and involvement of children and young people involve the use of resources both in terms of financial and people-time. Expected expenses can be identified while planning the participation activities so that this does not ‘fail’ because of a lack of financial resources.

- The particular aims and goals would give clear picture of people who needs to be involved in the participation activities. Therefore, subdividing the target population into smaller groups by age, gender, location or other characteristics can help to facilitate the undertaking participation process.

- The methods chosen to engage the children and young person should match the nature of the participation activity, the participating people as well as the available resources and the aims and goals. Key phase in the process of participation, evaluation, is the most challenging phase, which requires the use of a range of different outcome measures including measures of children and young people’s experience, which are not always easy to capture.

- Providing feedback to those who have been involved is the final phase of the participation process will influence trust and confidence of children and young people and will also influence their willingness to participate in the future processes.

- Undertaking any participating projects are subtle and hard work and so at the end of the project it is important to share the experiences gained through the process and celebrate the success.

Next section presents the process of participatory design with children and young people.

2.11 Process of Participatory design with Children and Young People - Children's participation project cycle

Different steps of the model of the participatory design process with children and young people (Figure 2.10) are described below:

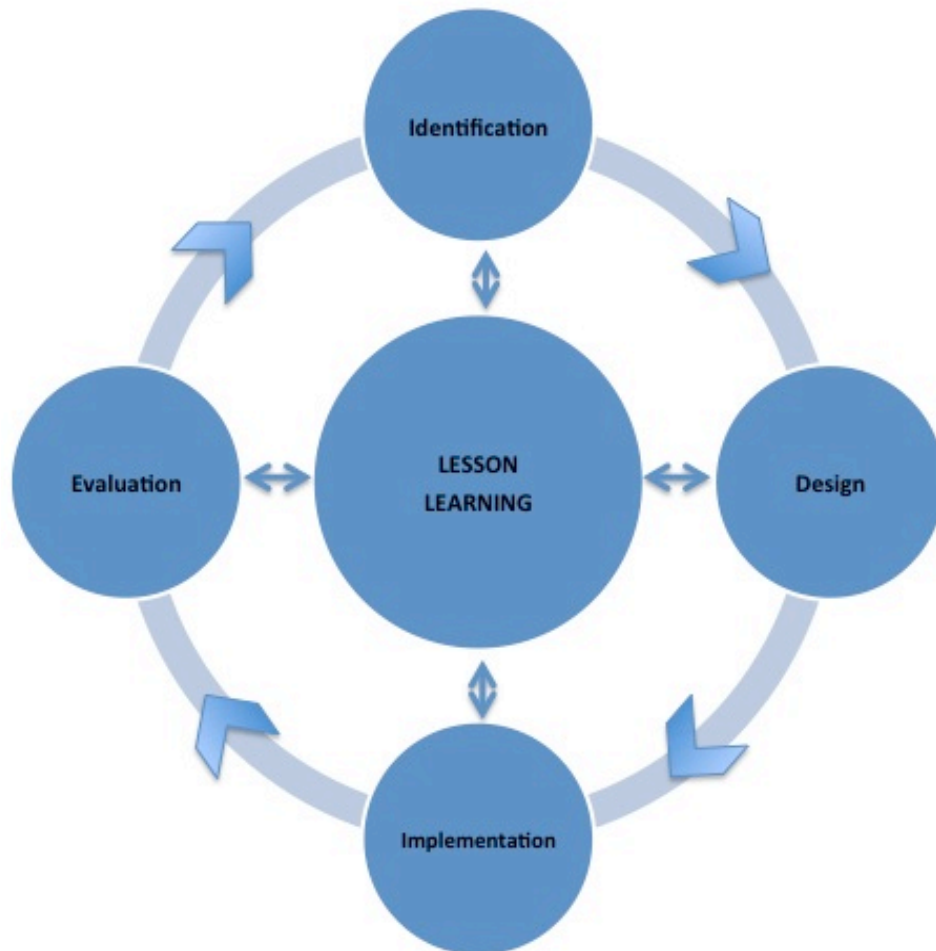


Figure 2.10 Children's participation project cycle (Blackman, 2003):

Project identification: Stephenson et al, (2004) state that project identification generally focuses on identifying the community/users needs that a development project could address. For example, if a project is addressing a specific problem concerning children, particular groups of children will be selected to participate. They also identify children as key stakeholders that “possess useful and important knowledge that no-one else in the community can provide.” (Stephenson et al, 2004:30). There are different tools for participatory activities for children at this stage, such as: Transect walks around the building (Moore, 1990), mapping their lives

(Clark and Moss, 2001), child-to-child interviews, daily activities chart, focus groups and ranking to show priorities (Stephenson et al, 2004).

Project design: the next step of the project cycle is to identify how to address the needs that have been elicited earlier. Therefore, it is essential to collect further information about the problem identified by or with the children, and its context (Stephenson et al, 2004). The project design stage consists of several parts. It is necessary to identify at which part and how children should be involved. At this stage of the process it might be helpful to carefully select particular groups of children to participate. Data collection tools can include drawing and mapping, traditional interviews and questionnaires, photography and video and so on (these will be presented later on section 2.12). After collection of all data, the next step involving the children is the design stage.

Implementation and evaluation: children should be involved in the implementation and evaluation stage of the project to ensure their views were appropriately considered. They can express their ideas and feelings and concerns throughout the process. The evaluation of the children's view and their impact can be placed on the whole participation process (Ministry of Social Development, 2003). This would create a realistic picture of the process, which can manifest its weakness and strengths.

According to Stephenson et al, (2004) in order to have children's voice and views throughout the implementation and evaluation stage, it is important to make sure that:

- children take an active role in the project organisation
- children take an active role representing the project.
- children are engaged in monitoring and reviewing the progress of the project
- children evaluate the influence of the project on their own lives.

A participatory evaluation performed at the end of the project enables the primary stakeholders to assess whether the objectives and goals of the project have been reached. The age and experience of the children involved in the evaluation stage can determine the methods that are employed. A participatory evaluation can also suggest major changes in strategy and future works (Stephenson et al, 2004).

Celebrating and documenting lessons learned: includes the provision of documents describing what has been learned from projects. This could be done by encouraging children to document their own experiences and learning. All work with children should include a spirit of fun and playfulness, as children tend to enjoy the process in which they involved whereas adults tend to pay attention on the outcomes and results. Sketches and drawings by children can illustrate the good and bad points of the project. In order to achieve a good result, success should be celebrated and lessons should be learned.

In order to document what has been learned from projects about children's participation the following actions can be taken:

- writing a newsletter with children about the achievements in the project.
- writing a document about lessons learned from the interaction between children and adults.
- encouraging the children to write their own experiences and learning.

Different approaches and culture learned in participation should be shared with the next generation of children (Stephenson et al, 2004).

The existing model of a children's participation project cycle is describing major phases of each typical participation process (Shtub et al, 2005). From this model it can be concluded that participation can have different meanings in different contexts and that no one model can be employed across all settings and to all processes. Therefore, it is difficult for every project to generalize the process and technical issues they face. These would be mainly due to differences in their principal attributes, such as length, cost, type of technology used and users. The next section will highlight different methods employed in participatory design with children and young people.

2.12 Methods and Practices Used at Different Phases of the Process

There are different tools for doing participatory activities with children. Visual methods such as drawings, maps, photographs, and videos are recognized as useful in working with children (Stephenson et al, 2004).

There are several studies recommending the use of a visual image to prompt a response in research with children and young people of all ages (Backett and Alexander, 1991; France, Bendelow and Williams, 2000; Morrow, 2001; Dockett and Perry, 2003; Fasoli, 2003). There are two fundamental rules for all work with visual methods (Regional Working Group on Child Labour, 2003):

- Interpretation: pictures, drawings, diagrams, and maps, which must be interpreted by their authors.
- Ownership: participants own the pictures they create and therefore, before presenting diagrams, maps, drawings, and photographs for further distribution or publication, permission should be obtained from them.

Some children are more comfortable bringing up verbally issues of important to them in the meetings. The following are some of the tools, which have been adapted for use with children (e.g. Moore, 1990; Orellana , 1999; Bishop, 2008).

2.12.1 Tour or walking interview

The idea of the field trip was grown by Moore (1990). It has an advantage of obtaining more insight and additional information from non-verbal language and behaviour than would have been discovered through an interview. Participants were able to give much more information about their activities and personal preferences through showing the researcher than would have possible through explanation.

Bishop (2008) describes a similar approach in the Children's Hospital project at Westmead. Children and young people took the researcher on tours and they were talking about what they did in each area and how they responded to each type of environment. Through that study the areas of the hospital outside of their wards that they most regularly visited, and the most common motivations for visiting them were identified by the participants.

2.12.2 Photographing

As Orellana (1999) argues one of the popular methods in children centred research is photography. It allows children to explore and record their own experiences and perceptions and sense of place(s) (Hart, 1992). Traditionally, the researcher shows their photographed objectives to the participants to discuss. However, recently these photographs have been taken by participants themselves (Coad, 2007).

Children's own reasons behind their photographs should be fully appreciated by the researcher. To do this children can be asked to explain their photographs, which can lead to further implementation methods in the research process, such as interviews.

Beloff (1985:3) has emphasized that 'the camera has enlarged our world in space and time ... so it is possible for us to see strange places and people in images'. Bishop (2009) has incorporated the use of cameras by children in her PhD research to enable children to take photographs of their choosing of the hospital environment during the walking interviews. She found that there is a risk that every kind of area in the hospital may not have been included by this task and also some of the photos did not meet the hospital requirements as they should have no people in them. Therefore "it is important to include a range of methods in order to allow children with different abilities and interest to take part." (Clark, 2004:144)

2.12.3 Mapping

Children are able to map their lives like adults. "The method can provide valuable insight for others into children's everyday environment because it is based on the features they consider important, and hence can lead to good discussion about aspects of their lives that might not so easily emerge in words." (Hart, 1997:165)

Save the Children (2000) argues that a map can be regarded as a small-scale model as well as a full size simulation and they are commonly used as a motivation for the participants' interpretations and explanations.

An experiment that was performed by Clark and Moss (2001) on mapping with children under five years old can be regarded as a valuable example.

In their experiment, children took their photographs and after revision they made a map to illustrate their surrounding environment. Through that they emphasized their fascination about the rooms and tried to show their favourite rooms, activities and even favourite people around them. The researchers used audiotapes for the map-making sessions to support the experiment which allowed them to gain insights into the children's world.

Figure 2.11 is an example of a map drawn by a boy to show places that are important to him in the action research with Kampala street children done by Young and Barrett (2001). They stated that “the maps themselves were useful tools in eliciting information about the daily life of street children as they were keen to talk about what they had drawn and provide details of where each place they had marked was and why it was an important place to them.” (Young and Barrett, 2001:144)

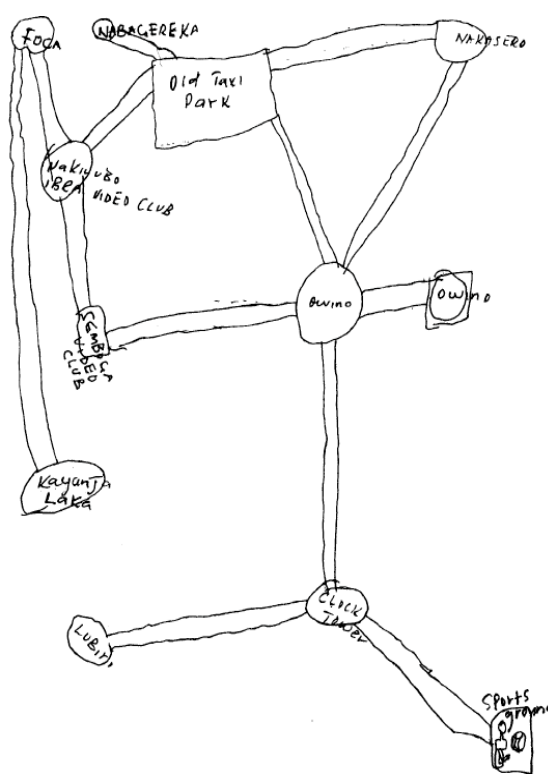


Figure 2.11 Example of map drawn by a boy (Taken from Young and Barrett, 2001)

2.12.4 Daily activities chart

In this method children are asked to make a record of their daily lives on a chart, using pictures and it may include brief notes written by older children. Figure 2.12 is

an example of a daily activity chart of a disabled child in Zimbabwe by McIvor (2001). It was a participatory project, where the principal researchers would be children themselves from informal settlements. The figure 2.12, Daily activities chart, shows: a) What they do in a typical day, and b) How many hours they were spent on each task.

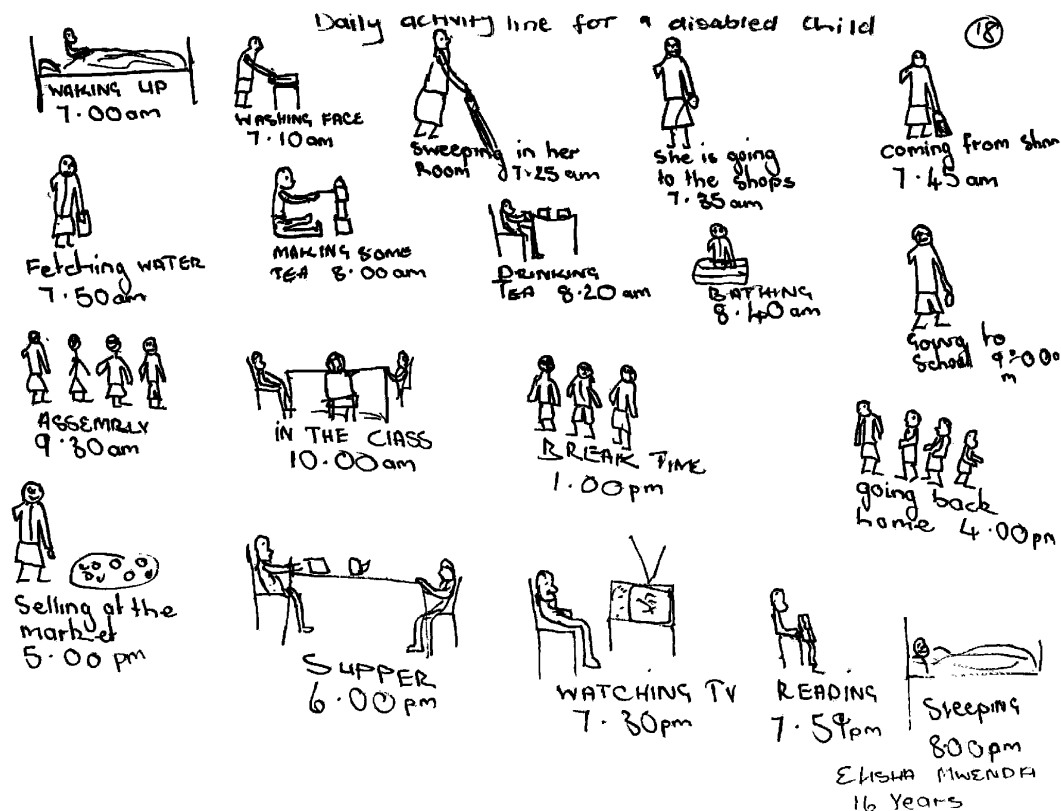


Figure 2.12 Daily activities chart (McIvor, 2001)

2.12.5 Drawing

For many children drawing is a popular way of communication, and it has become a popular research method. It provides children with freedom to express their thoughts and communicate, especially children with limited literacy proficiency (Young and Barrett, 2001).

Through drawing techniques adult researchers can gain insight into the child's mind in a way that they may not achieve through other methods (Coad, 2007).

However, asking children and young people to create a drawing can be quite challenging and encounter some problems such as; it might be threatening to them to ask, become over stylized and the activity does not remain the aim of the project (Gibson,et al, 2005). Applying supplementary techniques, such as ‘draw and write’ techniques (Figure 2.13) is recognized by many as a solution to over come these problems (Johnson, 1990; Pridmore and Bendelow ,1995; Di Gallo, 2001; and Gibson et al. 2005) .

Similar to photograph techniques, the children’s drawing should be discussed with the child, to ensure that the child’s meaning and interpretation are not hindered or ignored by the researchers (Hart, 1992).

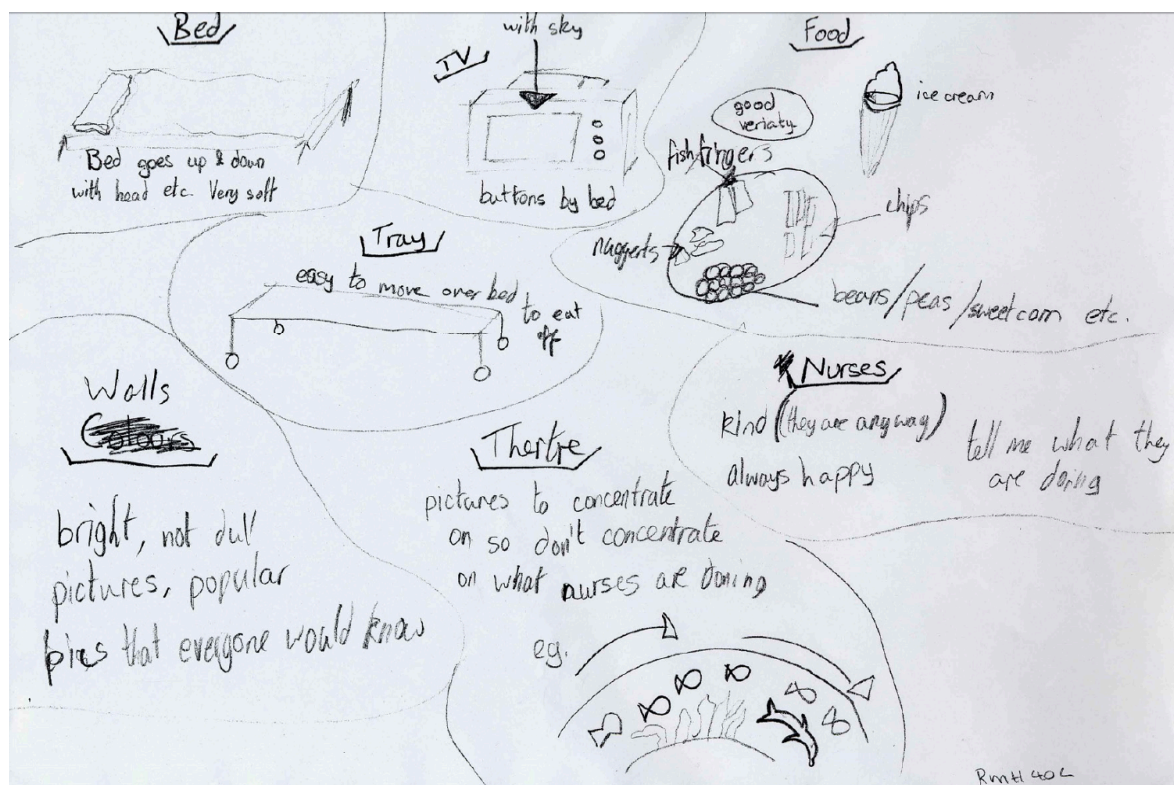


Figure 2.13 Children’s ‘draw and write’ (Gibson et al, 2005)

2.12.6 Focus groups

Focus groups result in new ideas through the interactions between all members of the group (Stephenson et al, 2004:30). A facilitator leads discussions in focus groups about a particular topic but they do not produce factual data (Regional Working

Group on Child Labour, 2003).

A focus group discussion requires (adapted from Regional Working Group on Child Labour, 2003):

- 8 to 15 participants with the same characteristics, such as a group of street children
- a comfortable place with no interruptions or spectators, enough space for everyone to sit down comfortably in a circle
- a set time for discussion (no less than one hour and not normally more than two)
- a list of ideas, questions or topics to be covered from the relevant research tool.
- a skilled facilitator and at least one person skilled in taking notes.

If focus groups are undertaken carefully, they can be a good way of breaking down this power relationship. The power relationship between the designer and children tends to be that the child responds more in these groups than the adult researcher (Wilkinson, 2000). However, the main concern is that there may not be a culture of free discussion and one may speak in turn at length with his or her view, without engaging with other people. Therefore, a mix of many different visual, verbal and written techniques has proven to work more effectively in this respect.

2.12.7 Questionnaires

The questionnaire is another popular method of collecting feedback. However, people would not be willing to spend time filling it out, and the researcher might not always perceive what they need to know. It is important to consider the fact that the way a question is set up will partly determine the responses the researcher gets and it is hard to get critical statements instead of nice things from participants at the end of a project.

2.12.8 DISCUSSION

There are various methods in research with children both qualitative and quantitative. Quantitative methods such as questionnaires cannot provide child friendly communication (Barker and Weller 2003) whereas, qualitative methods such as

photography and drawings are seen as most effective way to gain children's perspectives. Therefore, a multi method approach can allow children with different abilities and interests to take part (Clark, 2004) and reflect the diversity of children's experiences and perception (Barker and Weller 2003). Children and young people with limited literacy proficiency can use visual art-based techniques to help them to describe their environments (NE-CF, 2005; National Network for the Arts in Health, 2005). With art-based techniques interpretation, confidentiality and data production and collection are common challenging ethical issues in the context of using these methods. As it has been highlighted before (see section 2.12.5) data produced by child centred research methods such as drawing require explanation by the participants themselves. Thus, in order to establish an effective and useful communication with the participants, researchers must engage with them more painstakingly accurately and carefully (Barker and Weller 2003).

The next section is concerned with synthesising issues and challenges, which can affect participatory design with children and young people.

2.13 Issues and challenges of Participatory design

Creating any involvement system in order to develop, monitor and evaluate healthcare services is a complicated and lengthy procedure. It becomes more challenging when children and young people with different issues of age, understanding, consent, access and availability, interest and so on are involved (Tritter et al, 2003).

Despite the benefit of participation (see section 2.7), the literature shows that participation is very rarely achieved or sustained in its highest levels because of a number of barriers in involving children in hospital design. These can be summarised as:

Lack of time: consultation with children takes more time than with adults, as they tend to resist abrupt questioning (Alderson, 2008). As projects have deadlines, one should adopt appropriate tactics to overcome this barrier.

Lack of confidence: Gaining insight into the children's perspective and views might involve risks and possible mistakes, generating lack of confidence. It is suggested that

parents and children are willing to work with professionals who have a sincere manner and intentions, rather than ones with slick communication skills (Alderson, 2008).

Communication: As indicated in many studies (e.g. Cross and Clayburn Cross, 1995; Bucciarelli, 1996; Badke-Schaub et al., 2007; Alderson, 2008), one of the major problems during design in any multi disciplinary team is communication. One requires adequate skills to establish communication with children of different ages.

Mass confusion: The project may face complexity and mass confusion from the number of choices in the configuration process. This would create a barrier in the positive flow of process (Piller et al, 2003).

Suitability/Maintenance: As children's views change, it is very important to carry on engaging with them continually. Graham (2004) apud Magee (2005) expresses his view, as "The important thing is that the child's perspective is sustained and maintained."

Lack of facilitators: Skills, training and unique personal attributes are necessary key elements in working with children and young people (Ministry of Social Development, 2003). The Ministry of social Development (2003) argues that facilitators should have number of characteristics such as:

- having experience in working with children
- being able to be good listeners
- culturally well-educated and aware
- aware and considerate of individual children's needs and personalities
- allow children to take the lead as much as possible
- allow everyone a turn to speak, even children with quieter voices
- creative and focused on making enjoyable participation sessions
- familiar with safety issues.

Interpret what children are saying: Sinclair (2004) gives an example to demonstrate the importance of consistency of children and adults meaning and

interpretation. As an example she emphasises ‘protection’ and ‘being safe’, which were in the UK Government’s proposed outcomes for children, but children and adults interpreted them differently:

“To the children, ‘protection’ implied over-protection and restrictions by adults and was seen negatively, whereas ‘being safe’ related to the generation of positive environments for children, free from bullying and crime, and was seen as desirable.” (Sinclair, 2004: 113). It may be helpful to use different approaches in working with children (Sinclair, 2004) and have children and adults working together to produce ideas and understanding (Clark and Moss, 2001, Gardner and Randall, 2012).

The issues of using participatory design process with children and young people are described. This research will analyse ways to improve and tackle these issues. The evaluation tools, which can evaluate the impacts of the design of the building on patient and staff satisfaction and patient health outcomes, are described as follows.

2.14 Evaluation methods

As it was mentioned earlier in this chapter (see section 2.2), the built environment profoundly affects the healing process of patients in the hospital. “In order for a hospital environment to function optimally, a key question is, is the infrastructure “fit for purpose?” (De Jager, 2007:2). To answer this question, a few assessment toolkits for healthcare environments were presented as evaluation methods (Appendix J). Some of the available toolkits are described below.

2.14.1 AEDET Evaluation

The NHS along with CABE (Commission for Architecture and the Built Environment), the CIC (Construction Industry Council) and Sheffield University developed The Achieving Excellence Design Evaluation Toolkit (AEDET Evaluation), an excel-based evaluation strategy to ensure working within a common industry framework (DH Estates and Facilities, 2008).

The AEDET evaluation tool can facilitate measurement and management of the design quality in healthcare environments (Ghazali and Abbas, 2011). It employs

criteria, which is referenced to evidence based design literature in the evaluation to improve reliability (Ghazali and Abbas, 2011).

AEDET Evaluation has three key areas: Impact, Build Quality and Functionality, which are divided into 10 assessment criteria (DH Estates and Facilities, 2008). The Figure 2.14 shows the basic framework and criteria.

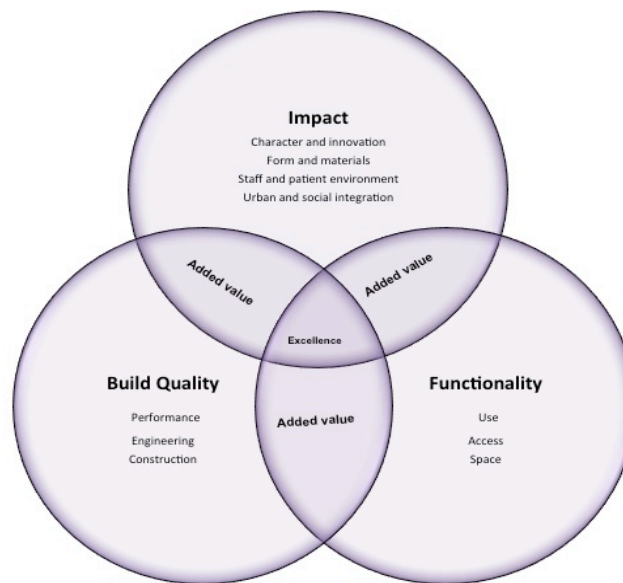


Figure 2.14 AEDET Evaluation – three key areas (DH Estates and Facilities, 2008b)

2.14.2 ASPECT

A Staff and Patient Environment Calibration Toolkit (ASPECT) is an evaluation toolkit in healthcare buildings which evaluates the quality of design of staff and patient environments (DH Estates and Facilities, 2008a).

It can provide a more comprehensive support for Achieving Excellence Design Evaluation Toolkit (AEDET Evolution) or it can be used as a stand-alone tool, which can be used by individuals or in workshops by groups (DH Estates and Facilities, 2008a).

ASPECT can be useful for clients, developers, design teams, project managers, estates/facilities managers, design champions and user clients such as patient representatives and members of the general public in commissioning projects. It can

facilitate the measurement of the influence of the healthcare environment on the patient's satisfaction, and facilities and services provided to staff (Ghazali and Abbas, 2011).

ASPECT Evaluation has 8 main sections: 1) Privacy, company and dignity, 2) Views, 3) Nature and outdoors, 4) Comfort and control, 5) Legibility of place, 6) Interior appearance, 7) Facilities and 8) Staff (DH Estates and Facilities, 2008a).

As it has been illustrated in Figure 2.15, a summarised score of different sections in the healthcare environment that can express “how well a healthcare building complies with best practice”.

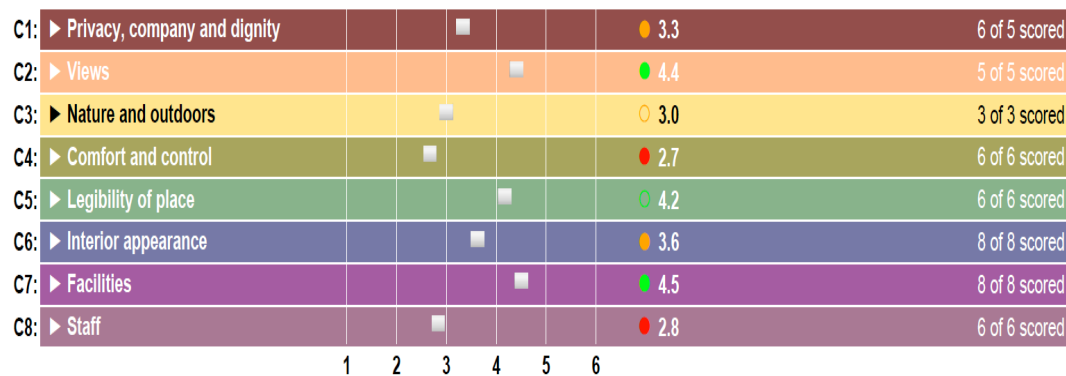


Figure 2.15 The Microsoft Excel spreadsheet version of the toolkit displays the results of the scoring exercise, (DH Estates and Facilities, 2008a)

ASPECT can be used:

- to evaluate strengths and weaknesses of existing buildings.
- to evaluate and compare designs of new buildings.
- to standardise brief of ‘imaginary’ buildings.
- at the design process of healthcare buildings.

ASPECT and AEDET Evaluation tools have been developed with a hierarchical structure of layers, sections, headings and statements. The AEDET Evaluation tool can facilitate a comprehensive environmental assessment of a building's, and in particular a healthcare building's, compliance with best practice. The ASPECT tool represents section C of AEDET Evaluation (DH, 2007).

ASPECT and AEDET Evaluation tools are widely employed in connection with both PFI (Public Finance Initiative) and ProCure21 methods of building acquisition within the NHS. Similarly, it can be employed in participatory design of hospital buildings. It can evaluate the impacts of design of buildings on patient and staff satisfaction and patient health outcomes (DH, 2007).

2.15 Discussion

Academics, educationalists and practitioners are amongst those who have been interested in the study of children and their environments (Ecorys, 2011). Many different disciplines such as environmental and developmental psychology as well as planning have been involved in these studies. Treating the children and young people as a distinct stakeholder group in decisions affecting the environment is becoming more frequent within society (Ecorys, 2011). Currently, their voices are largely missing in the evidence from healthcare or healthcare design. The involvement of users is essential to allow the appropriate identification of their, often evolving, needs and requirements during the design process in the central importance of enhancing customer satisfaction.

If children's and adults' interests in a project do not come into potential conflict, the project is unlikely to have so much at risk. Blanchett-Cohen (2006) validates this viewpoint and argues that in the participatory process some level of struggle between children and adults is often a necessary stage:

“...the partnership between children and adults may at some level be strained. This is not a failed partnership, but may be the nature of a meaningful partnership as children and adults operate within a society and a system that is not child-friendly. They are negotiating a place and situation of understanding for both” (Blanchett-Cohen and Rainbow, 2006:126)

Horelli (2010) and Percy-Smith (2006) and many more have echoed this sentiment and argue that the conflict of children's views with those of others within the community provides opportunities for 'social learning', which is an essential part of the participatory process. Within the participation process the degree of 'influence'

over decision-making plays an undoubtedly important role. For example, “a participatory exercise might achieve a high degree of interaction between children and adults using Hart's model (processes), but fall short in terms of gaining leverage over those who hold decision-making power (outcomes).” (Ecorys, 2011)

One of the main issues that has been brought up within the literature is the extent to which participatory methods can engage all children and young people. However, it can be argued that there is a significant gap in the literature around facilitating a design process model for the complex environments of children's hospitals with delicate clients such as children. It requires a comprehensive analysis according to different steps and methods of process of involvement. The willingness to ensure that a diversity of children's voices are ‘heard’ and eventually brought up by adults, results in the separation of children's interests and the denial of their equal role and influence in the decision-making process.

The research questions are divided in four main themes: a) Role of participatory design b) Structure and methods, c) Issues and challenges, and d) Benefits of user involvement. Each theme includes one or two main questions.

The first theme is concentrated on the role of participatory design and tries to find out the importance of participatory design with children in children's hospital design. The question connected to this theme aims to discover the importance of children's involvement in hospital design.

The second theme, structure and methods, aims to describe and analyse the structure of the user involvement and the methods used to carry out the process in particular projects (Royal Alexandra Children's Hospital and Royal Manchester Children's Hospital). Two questions are connected to this theme (Table 2.3). The first one tries to find out at which steps of the design process children were involved, which methods were used to identify children's preferences and how the preferences were considered during the design process. The goal of the second question is to find out in building design within complex environments such as hospitals, and with delicate clients such as children, to what extent children can be involved and at what level of involvement.

Table 2.3 research theme and questions

Theme	Objective	Question
Role of participatory design	1. To understand the role of participatory design with children in children's hospital design.	What makes the involvement of children in design of children's hospitals important?
Structure and methods	2. To study the process and methods of identifying children's preferences and establish how the preferences were considered during the design process of the case studies	a) How was the process of user involvement structured and which methods were used? b) To what extent children can be involved in the design process of children's hospitals?
Benefits of user involvement	3. To identify the benefits of children's participation in the design process of children's hospitals	What are the expected benefits of children's involvement and what are the actual effects of their involvement?
Issues and challenges	4. To identify problems and issues associated with engaging children during the design process of children's hospitals	What are the key issues regarding the engagement of children during the design process?

The third theme is related to issues and challenges and its goal is to identify the issues and challenges associated with children's involvement during the design process of children's hospitals. The question connected to this theme tries to discover the problems and issues of children's involvement in hospital design and how the case studies face the challenges.

The last theme, benefits of user involvement, aims to analyse the role of participatory design with children to provide a proper hospital for children that can promote their healing process. The question related to this theme analyses the expected and perceived benefits of children's involvement.

2.16 Summary

This chapter discussed the relevant literature for this research. First, insights from the physical environment and wellbeing were presented, describing efforts in involving children in the design process, the benefits involvement, as well as the issues related to the process. Finally, it discussed the structure, methods and level of involvement. The next section will elaborate on the research method, which has been used for this study.

3 Research method

3.1 Introduction

The previous chapter covered the review of existing literature about children's participation in the building design process, its benefits and problems. This chapter presents the research method adopted in this study to address the research problem. The chapter discusses research philosophy, strategy and methods adopted in this research aiming at fulfilling its aim and objectives.

3.2 Research method

Research methodology has been described by (Kumar, 2011:18) as: "taught as a supporting subject in several ways in many academic disciplines at various levels by people committed to a variety of research paradigms". Research methodology refers to the research framework within which different approaches can be put together in practice to facilitate to set out the research process (Remenyi et al., 2003; Collis and Hussey, 2003; Leedy, 1989).

As pointed out by Peter and Howards (2001: 595), "good research is rigorous, systematic, integrated, focused and objective:

Research which meets the criteria of rigour, a systematic kind of modeling in its articulation and which ties back its process to a solid grounding in what we know about the area ... being researched, so that there is a total integration of varying viewpoints in the grounding of the research design".

Better understanding of the importance and relation of each component in the research methodology can promote a better flow of the research process. The nested approach, as proposed by Kagioglou et al., (1998) can help to understand the assumptions, direction and cohesion of this research.

Kagioglou et al. 1998 describes the ‘nested’ approach as a holistic, integrated research method that “the model’s elements generated a framework, which provided the research team with an interactive portfolio of approaches and techniques that benefited from meta-level direction and cohesion” (Kagioglou et al., 1998:143).

This study is based on the interpretative school of thought. Given the nature of the research problem, the case study was considered the most appropriate strategy for this research. Data have been collected through semi-structured interviews, document analysis and review and synthesis of existing literature. The data analysis was done through content analysis, using NVivo software. Figure 3.1 demonstrates the application of the nested approach to this research, and each of its elements is explained in more detail on this chapter. The next section concentrates on the paradigm driving the research.

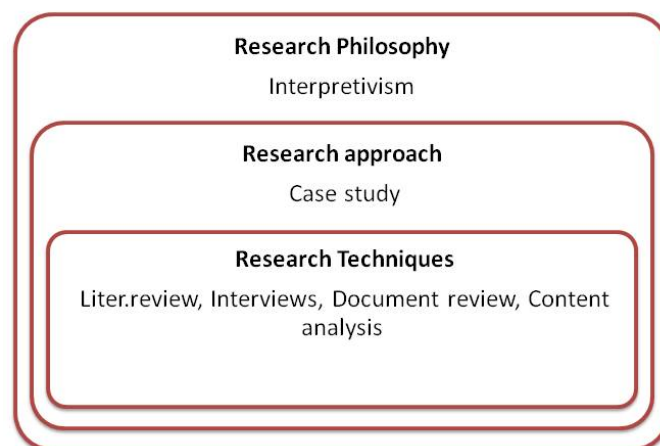


Figure 3.1: The research method: ‘nesting’

3.3 Purpose of the research

According to Collis and Hussey (2003), research can fulfil different purposes, has been described as follows:

- **Exploratory** research, which is conducted on a research problem or issue when no earlier or very few studies exist to which can be referred to.

- **Descriptive** research describes and classifies the characteristics and elements within a subject.
- **Analytical or explanatory** research is a continuation of descriptive research to suggest or explain why and how is something happening.
- **Predictive** research aims to predict certain phenomena on the basis of close analysis of evidence.

The research presented in this thesis is *descriptive*, in that it aims to establish the activities that occur during participatory design of children's hospitals. It is *exploratory* in identifying factors influencing participatory design success. It is also *explanatory* as it describes problems and issues occur during the participatory design process.

3.4 Research philosophy

Easterby-Smith et al (1997) points out three important features of the research philosophy; a) to provide support to the researcher to refine and specify the research methods, b) to assist the researcher to evaluate different methodologies and c) it may help the researcher to be creative and innovative in either the selection or adaptation of methods that were previously outside his or her experience.

Two main schools of thought have been recognised for shaping the epistemological debate (Easterby et al, 2002). Positivism argues that "working with an observable social reality and that the end product of such research can be law-like generalisations similar to those produced by the physical and natural scientists" (Remenyi et al, 1998). In this way, mainly quantitative and experimental methods are adopted to examine the hypothetical-deductive generalisations (Blaikie, 1993).

On the other hand, the interpretative social science emphasises the difference between research conducted among people and those conducted among objects (Saunders et al, 2007). Therefore, the social scientist should welcome and appreciate the different views and meanings that people place upon their experiences (Easterby et al, 2002). "The aim of such research is to investigate the meaning of social phenomena as experienced by the people themselves" (Malterud, 2001: 398).

For the purpose of this study interpretivism has been adopted as the overall research philosophy due to a number of reasons. The main purpose of employing the interpretivist paradigm is that the topic per se, participation, is actually very much shaped by peoples' experiences, and also by contextual issues. Therefore the research problem does require the researcher to achieve a deep understanding of meaning and appropriate consideration of context. To achieve the aim of the study (presented in section 1.3.1) the researcher is required to identify different views of people who have been involved in the design process of hospitals (such as designers, planners and NHS staff). Hence, the study encourages the people to tell their ideas, opinions and experience about the participatory design process of a children's hospital.

3.5 Research design

Research can be quantitative, qualitative or mixed in its approach. "The choice of methods by a researcher turns on whether the intent is to specify the type of information to be collected in advance of the study or to allow it to emerge from participants in the project"(Creswel, 2003:17). Data may be gathered or collected as numeric information on scales of instruments or text information through recording and reporting the voice of the participants (Creswel, 2003). In some cases, both quantitative and qualitative data are collected in the same time.

Many authors (Miles and Huberman, 1994; Cavaye, 1996; Hussey and Hussey, 1997; Darke *et al.*, 1998; Leedy and Ormrod, 2001) have commented on the choice between qualitative and quantitative methods in research. As Collis and Hussey (2003:13) describe, a quantitative research "is objective in nature and concentrates on measuring phenomena." which involves collecting and analysing numerical data and applying statistical tests. As Creswell (2003:119) expresses that "in quantitative research, the hypothesis and research questions are often based on the theories that researcher seeks to test." Nonetheless, "qualitative approaches seek to gain *insights* and to understand people's perceptions of 'the world' — whether as individuals or groups" (Fellows and Liu, 1997:19). In most qualitative research, the primary aim is to understand the social reality of individuals, groups and cultures, as is expressed by Holloway (1997:2) and according to Malterud (2001), it is to study the meaning of social phenomena which is experienced by the people themselves (Malterud, 2001: 398). In

the words of Denzin and Lincoln (2005) “this means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them.” (Denzin and Lincoln, 2005: 3).

Mixed method research is research in which the researcher uses the qualitative and quantitative data collection strategies for the different phases of the research in order to fully understand a research problem. “If the qualitative is chosen in addition to the quantitative as a commitment to the mixed method enterprise, then it must in some sense “complement” the other.” (Miler, 2003: 442). As an example a researcher can perform an experiment (quantitative) and then perform an interview study with the participants (qualitative) to understand and obtain their views about the experiment and the results (Migiro and Magangi, 2011).

As this research seek to understand the process of children’s participation during the design process of hospital, qualitative approach to data gathering has been employed.

3.6 Research approach: case study

A research approach is a general plan on how to answer research question(s) and consequently satisfy the research objectives (Saunders *et al.*, 2007). It is the strategy employed to collect data and perform its analysis.

The following table (Table 3.1) shows alternative research approaches of inquiry based on qualitative, quantitative and mixed method (Creswell, 2003).

Table 3.1 Alternative research approaches – Creswell (2003)

Quantitative	Qualitative	Mixed Methods
Experimental designs Non-experimental designs, such as survey	Narratives Phenomenologies Ethnographies Grounded Theory Case studies	Sequential Concurrent Transformative

In addition, Yin (2003) has suggested five strategies of inquiry based on nature of research question which are summarised on the following table (Table 3.2). Yin

(2003:14) defined the case study as a research approach in two ways, first, “as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” Second, “the case study as a research strategy comprises all-encompassing method; covering the logic of design, data collection techniques, and specific approaches to data analysis”. The aim of case studies is to reach a fundamental understanding of structure, process and people (Gummeson, 2000). It may be *qualitative* or combined qualitative and quantitative, depending on the circumstances (Yin, 1994; Silverman, 1998).

Table 3.2: Five different types of research approach (Yin, 2003)

Strategy	Form of research question	Requires control over behavioural events	Focuses on contemporary events
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival analysis	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No
Case study	How, why	No	Yes

As it is mentioned above (Tables 3.1 and 3.2) the case study approach has been suggested as an alternative strategy in research enquiry by both Yin (2003) and Creswell (2003). Case study is the most appropriate approach to satisfy the aims and objectives of this study, as it aims to investigate a contemporary event within its real-life context. The main objective of this study is to gain empirically an in-depth understanding of the process, benefits and barriers affecting the engagement of children in the design of children’s hospitals. Saunders et al. (2007), Jankowicz (2005) and Gummeson (2000) assert that case study can be used if the researcher wishes to gain a rich understanding of the context through getting comprehensive and informative information. Moreover, Yin (2003) suggests that the case study as an

ideal approach for research that focuses on the “what, why, and how” questions. This research explores the process and barriers affecting the engagement of children in the design of children’s hospitals and the ways to overcome those barriers and to tackle any upcoming issues and challenges, answering some ‘how’ and ‘what’ questions (see session 2.14).

The dynamics of participatory design process have been studied in their natural settings by investigating two large children’s hospitals. This research’s unit of analysis was the participatory process with children and young people in design of children’s hospital.

Accordingly, this research has employed a qualitative approach for data collection technique by interviewing number of target groups including PFI members, NHS staff, and the Design teams in each case study. These groups provide diverse perspectives on the children involvement in design of children’s hospital.

3.6.1 Selection of cases

There is no definite answer to justify a single case or multiple cases in a research process. As Yin (2003) discusses, the single case can be used when it represents:

- a critical case in testing a well-formulated theory
- an extreme or unique case
- a representative or typical case
- a revelatory case
- a longitudinal case: studying a single case at different points in time

Voss et al. (2002) argues for the advantage of single case study (as it shown in table 3.3) as it could be offering greater depth of study versus the disadvantages of limitations on the generalisability of conclusions drawn. However, it could also lead to bias such as misjudging the representativeness of a single event and exaggerating easily available data.

Table 3.3 Choice of number of cases (Voss et al., 2002)

Choice	Advantages	Disadvantages
Single cases	Greater depth	Limits on the generalisability of conclusions drawn. Biases such as misjudging the representativeness of a single event and exaggerating easily available data
Multiple cases	Augment external validity	Less depth per case

According to Yin (2003), multiple cases are generally used to replicate findings or support theoretical generalisations. In addition to that, multiple case study research increases external validity (Voss et al., 2002). Similarly, Yin (2003: 54) stated that, "the criticisms may turn into scepticism about the ability to do empirical work in a single case study. Having multiple cases can begin to blunt such criticisms and scepticism".

As Miles and Huberman (1994) emphasise, if multiple cases were adequately sampled and carefully analysed, it can help the answering of reasonable questions that could provide better understanding and explanation of specific conditions. This research has adopted multiple case studies in order to facilitate the analysis of data across children hospitals, which in turn enables the identification of context specific elements in the participatory design process and outcomes. In this way, multiple sets of case studies has been employed to allow for a replication the same phenomenon under different conditions in appropriate research designs.

Both cases have taken place in purpose built children's hospital in the UK. The selection of the cases has a significant influence on the outputs of the research therefore the reasons for selecting the specific cases are presented as follows.

Case A: Royal Alexandra Children's Hospital

The first case study, Royal Alexandra Children's Hospital (the Alex) in Brighton reopened in 2007 after a major redevelopment. The new Children's Hospital is one of only seven dedicated paediatric hospitals in the UK. The new development was able to transform the old hospital to a relatively more spacious structure with more than three times the size of the original building - it replaced and doubled the number of available beds. The project has won 2008's Prime Minister's Better Public Building Award. The redevelopment plan was aimed to provide the best possible environment in which children could receive treatment and recuperate whilst creating a welcoming environment. The two main key elements in the success of the development are: recognising the needs of individuals, most notably young people and their families and high quality services for families and children through effective engagement with users.

Planning permission was granted in January 2004. The Royal Alexandra Children's Hospital in Brighton opened in 2007 (Document H). The participation of children in the project cycle was not a continuous process. It occurred twice; in December/2003 for project identification and second time in middle of 2006 till the end of project (Document A).

This case was selected due to the fact that it has been successfully adopting a user engagement approach to manage perception and preferences of children and young people throughout the project. In this way, it provided rich evidence on the participatory design process over a long period of time.

Case B: Royal Manchester Children's Hospital

The second case study, the Royal Manchester Children's Hospital (RMCH) is the largest single-site children's hospital in the UK comprising 371 beds, including 17 intensive care and 12 high-dependencies. It converted two children's hospitals at Pendlebury and Booth Hall to a single building. The new hospital opened on 11 June 2009. It had been intended to establish and maintain a sense of the human-scale, therefore minimising the anxiety of patients and families crossing the hospital

threshold for the first time. The hospital has been selected as a case study for this research due to the fact that the design has been initiated thorough participation process, which has involved a number of staff, patients (children and young people) and their families to balance the needs of users and providers of services, in a complex environment. Therefore, it can provide evidence on the front-end of the participatory design process.

In May 2000, the Outline Business Case was approved and preferred bidder was identified in April 2002 (Document Q). The building work process commenced on July 2004 and the project was completed in April 2009 and opened on 11 June 2009.

Children and young people's involvement in the design process occurred twice; in 2003/2004 for project identification (which it was eventually fed to design brief) and second time in middle of 2008 till the end of the project.

Within each of the cases multiple sources of evidence were used to allow for triangulation of data (see section 3.8.1). Such evidence was collected through different research techniques, which have been described in the next section.

3.7 Research techniques

Six major research techniques are suggested by Yin (2003): documentation, archival records, interviews, direct observation, direct observation and physical artefacts. Yin (2003) tabulated the weakness and strengths of using different sources in the case study approach (Table 3.4). Yin (2003) noted that no single source of data has a complete advantage over others, while the various source are complementary.

Semi structured interviews, along with document analysis as complementary data gathering methods have been used to reduce the effects of these weaknesses. These are explained further as follows.

Table 3.4: Six sources of evidence: strengths and weakness (Yin, 2003: 86)

Source of evidence	Strengths	Weakness
Documentation	<ul style="list-style-type: none"> - Stable: Can be reviewed repeatedly - Unobtrusive : not created as a result of the case study - Exact : contains exact names, references and details 	<ul style="list-style-type: none"> - Retrieveability: can be low - Biased selectivity, if collection is incomplete - Reporting bias : reflects bias of the author - Access : may be deliberately blocked
Archival Records	<ul style="list-style-type: none"> - same of above - precise and quantitative 	<ul style="list-style-type: none"> - same as above - accessibility due to privacy reasons
Interviews	<ul style="list-style-type: none"> - Targeted : focuses directly on case studies - Insightful: provides perceived casual inferences 	<ul style="list-style-type: none"> - Bias due to poorly constructed questions - response bias - Inaccuracies due to poor recall - reflexivity : interviewee gives what interviewer wants to hear
Direct observation	<ul style="list-style-type: none"> - Reality : covers events in real time - Contextual : covers context of event 	<ul style="list-style-type: none"> - time consuming - selectivity : unless broad coverage - Reflexivity : event may process differently
Participant direct observation	<ul style="list-style-type: none"> - Same as above for direct observation - Insightful into interpersonal behaviour and motives 	<ul style="list-style-type: none"> - Same as above for direct observation - Bias due to investigator's manipulation of events
Physical Artefacts	<ul style="list-style-type: none"> - Insightful into cultural features - Insightful into technical operations 	<ul style="list-style-type: none"> - Selectivity - Availability

3.7.1 Literature review and synthesis

According to Hart (1998:13) the literature review is “the selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and

the effective evaluation of these documents in relation to the research being proposed.”

The literature review has number of functions, such as: providing researchers with the knowledge required to narrow the focus of their research topic, specifying the research problem in detail, identifying gaps in existing research knowledge, learning how to express certain views on the nature of the topic, identifying neglected issues in previous research, getting a rich source of secondary evidence on which to outline and finally creating a summary of research evidence (Burns 1997: 27-29). A broad review of the existing literature has been carried out in this research to provide the context and insights into previous works, as suggested by Blaxter et al. (2006).

The main bodies of knowledge investigated as the basis for this research are; design process, participatory design, children and young people’s participation and children’s hospital design. This review clearly demonstrates the potential benefits and current issues of participatory design with children and young people. It also demonstrates the need for a specific model of children’s participation during the design process of children’s hospitals. The existing model of children’s participation, (presented in section 2.12) which is Hart’s ladder of participation, is used as the theoretical framework for this research.

3.7.2 Semi-structured interviews

Easterby-Smith et al. (2002) defined in-depth interviewing as the most fundamental of all qualitative methods. In-depth interviews try “to understand the world from the subject’s’ points of views, to unfold the meaning of peoples’ experiences, to uncover their lived world” (Kvale, 1996:1). In qualitative interviewing the interviewee’s point of view is important and the focal point where as in quantitative research the interview reflects the researcher’s concerns (Bryman, 2012).

Kvale (1983: 174) defines interviews as a method, which supports the researcher “to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena”. The main objectives of the technique are to draw out the experiences and perspectives of the participants and also providing

the opportunity for research participants' to be able to point out their own personal feelings and ideas with regards to specific subjects.

Boyce and Neale (2006) and Bryman (2012) discuss the main advantage of in-depth interview techniques, compared to other data collection methods, as these provide much more detailed information. As Guri *et al.* (2005: 86) express that “the qualitative methods use relatively more qualitative techniques, such as conversation and in-depth semi-structured interviews”.

In this research, a semi-structured interview technique has been adopted and the questions are designed in an open-ended form in order to provide a way to encourage participants to talk and point out their experience in their own words. Moreover, the researcher can design the pre-determined questions, which can explore the research problem, rather than just relying upon general comments elicited by the respondents. The questions asked have related to the information about the interviewee (their background and role during the design process), the physical attributes which are important for children in the hospital environment, process and methods of participation/engagement, the benefits and issues in considering children's needs/expectations from the interviewee's perspective and additional recommendation and comments by interviewee (see Appendix B). At this type of interview, the questions can be asked about the behaviour or experience, opinion or belief, feelings, knowledge, sensory, and background or demographic of the participants (Patton, 1987). Table 3.5 and Table 3.6 present the list of interviewees as well as the question answered by each of them in Royal Alexandra Children's Hospital and Royal Manchester Children's Hospital respectively. More details about the date and length of each interview can be found on Appendix C and also an example of transcript is included as Appendix B.

Table 3.5: the list of interviewees and the question were answered by each of them in Royal Alexandra Children's Hospital

Interviewee	What and where?	Position	Data collected	Question were answered
A	Interview @ Hospital	Theatres	Site tour, Interview	Answer the questions about some part of design process and current situation
B	Interview @ Hospital	PFI Contract Manager	Site tour, Interview	Answer the questions regarding the design process and current issue
C	Telephone interview	Respiratory	Interview	Answer the questions mostly about the issues of the process and recommendation
D	Interview @ Hospital	Project Manager – Construction / Commissioning	Interview, Documents	Answer all the questions regarding involvement of children from 2006 (second stage of involvement)
E	Telephone interview	PFI Project Sponsor	Interview, hospital Documents	Detail of involvement of children from early stage
F	Interview @ Hospital	Matron	Interview	Answer all the questions
G	telephone interview	Project Director	Interview	Answer the questions regarding the project from early stage
H	Interview @ Hospital	Project Administrator	Interview	Answer all the questions
I	Interview (sent by email)	Chief Architect	Interview, Documents	Answer the questions regarding the benefits and issue of process
J	Interview @ Hospital	Teaching (B&H City Council)	Interview and classroom visit	Answer the questions regarding the feeling of children about new and old hospital
K	Telephone interview	Artist	Interview	Answer the questions regarding the design process of one piece of art project
L	Telephone interview	Artist	Interview	Answer the questions regarding the design process of one piece of art project
M	Telephone interview	Art coordinator	Interview	Answer the questions regarding the design process of one piece of art project
N	Telephone interview	Interior designer	Interview	Answer the questions regarding the interior design process and children's involvement
O	Interview @ BDP office	The project architect	Interview, Documents	Answer the questions regarding the design process
P	Telephone interview	Artist	Interview	Answer the questions regarding the design process of one piece of art project
Q	Interview @ Hospital	Consultant	Interview	Answer most of the questions regarding the involvement of children from the second stage
R	Telephone interview	Artist	Interview	Answer the questions regarding the design process of one piece of art project

Table 3.6: the list of interviewees and the question were answered by each of them in Royal Manchester Children's Hospital

Interviewee	What and where?	Position	Data collected	Question were answered
A	Telephone interview	Head of PFI Clinical Planning & Development	Interview	Answer the questions regarding the design process
B	Interview @ Hospital	Head of Nursing	Interview	Answer all the questions
C	Interview @ Hospital	Associate Director of Service Planning	Interview	Answer all the questions regarding the design process
D	Interview @ Hospital	Patient Partnership Manager	Interview and Document	Answer all the questions
E	Interview @ Hospital	Therapeutic & Specialised Play Consultant	Interview	Answer all the questions
F	Telephone interview	Principal at NBBJ Architects	Interview	Answer the questions regarding the design process (wasn't directly in touch with children)
G	Interview @ Hospital	Project Manager	Interview	Answer the questions regarding the design process (wasn't directly in touch with children)
H	Interview @ Lime Arts	Director, Lime Arts	Interview and Document	Answer the questions regarding the early involvement of children and art projects
I	Interview @ University of Salford	Artist	Interview	Answer the questions regarding the design process of one piece of art project

However, the main weaknesses of interviews have identified by Yin (1994:80) as:

- Bias due to poorly constructed questions
- Response bias
- Inaccuracies due to poor recall
- Reflexivity - interviewee expresses what interviewer wants to hear

Tape recording, transcribing all the interviews and complementary data gathering methods were used to reduce the effect of these weaknesses and provide triangulation of data. Triangulation is possible when more than one research technique is used, and the results from one technique are crosschecked with the results of the other to achieve greater reliability (Jankowicz, 2000).

3.7.3 Documentary evidence

According to Mason (2004), documentary information is considered as expressive and useful within qualitative research. Moreover, as Yin (2003) points out, documentary information is likely to be relevant to every case study topic. The qualitative document analysis is the systematic study of documents which refers to “an integrated and conceptually informed method, procedure, and technique for locating, identifying, retrieving, and analyzing documents for their relevance, significance and meaning.” (Altheide, 1996: 2)

Documents are created in particular contexts, by particular people, with particular purposes, and with consequences – intended or unintended (Mason, 2002: 110). The documents may include media reports, website content, meeting minutes, and personal diaries (Pryor, 2003.) The researcher can assess the content, style and language of the documents to gain access into the phenomenon under study (Atkinson, 2004).

In this study, the researcher has used documentary evidence mainly to provide specific details on the design process of the case studies. Tables 3.7 and 3.8 illustrate the specific documentation analysed within each case. A very brief description of contents of all documents are as Appendix C. Documents also provided complementary information to overcome the low reliability of the data obtained and

produced from the interviews. Different types of documents have been collected and analysed within each case, including written reports on the process, internal e-mails, as well as published information about the hospitals on the Internet.

Table 3.7 the list of documents analysed within in Royal Alexandra Children's Hospital

Documents	
Document A:	Welcome to the royal Alexandra children's hospital (booklet, DVD)
Document B	Royal Alexandra Children Hospital
Document C:	Project page.doc
Document D:	RACH - 3 texts.doc
Document E:	A01.jpg to A07.jpg
Document F:	Journal HD (Hospital development): the children's ark (AUG 2007)
Document G:	Welsh Conference and Exhibition, 2009 Healthcare Estates,
Document H:	Richard Glenn, Project Director, Alder Hey Children's NHS Foundation Trust
Document I:	Brighton and Sussex, University Hospitals NHS Trust, 3Ts Project Design Update
Document J:	ROYAL ALEXANDRA CHILDREN'S HOSPITAL, BRIGHTON
Document K:	RACH CYPB Front Sheet - Bespoke Furniture-1
Document L:	Agenda 070806-edit-1
Document M:	CYPB - Information Pod Content Meeting-edit-1
Document N:	CYPB-Pod1 - How the pod will look (1)

Table 3.8 the list of documents analysed within in Royal Manchester Children's Hospital

Documents	
Document A:	New Hospital Atrium Furnishing Project
Document B	Questionnaire – Teenage Chill out area
Document C:	Curtains-1
Document D:	New Children's Hospital – Information for Families
Document E:	Final report fed back to Teen Talk, recommendations to SMT
Document F:	Play area
Document G:	Record of staff projects 08-09
Document H:	Lime Art hydro report FINAL(1)
Document I	Children's curtain design (2)
Document J:	Drawing 3,4,5,6
Document K:	Art questionnaire
Document L:	A guided tour to artwork within the hospital
Document M:	New children's hospitals: identity and integration (The culture for the future of healthcare architecture: 28th international public health seminar, 22-26 June, Florence)
Document N:	Central Manchester University Hospitals NHS Foundation Trust Annual Report and Accounts – 2010/11.
Document O:	Annual Report and Summary Financial Statements 2008/09
Document P:	Central Manchester University Hospitals NHS Foundation Trust Annual Report and Summary Financial Accounts – 2009/10.
Document Q:	Memorandum by Central Manchester and Manchester Children's University Hospitals NHS Trust (PS 53)

3.8 Data gathering and analysis

3.8.1 Data gathering

The first stage of the research aimed to identify and investigate the structure of the user involvement process and the methods used to carry out the process. The study, at this stage, was based on a literature review in the areas of process of participatory

design with children and young people as well as the methods used to carry out the process. This review clearly demonstrated what the process of user involvement was like and the main goals for using the participatory design strategies as well as the potential benefits and challenges of such process.

Through this research, two case studies concerning the involvement of children and young people during the design process have been developed. In each case study, the design process structure and issues associated with engaging children were identified through documents and interviews. A semi-structured interview technique has been used to obtain the necessary data from the design team, PFI members and NHS staff and to understand their experience and opinion of involving children during the design process of case studies. Researcher couldn't talk to children themselves due to difficulties with ethical approval. Figure 3.2 illustrates a schematic representation of the data collection process of this research.

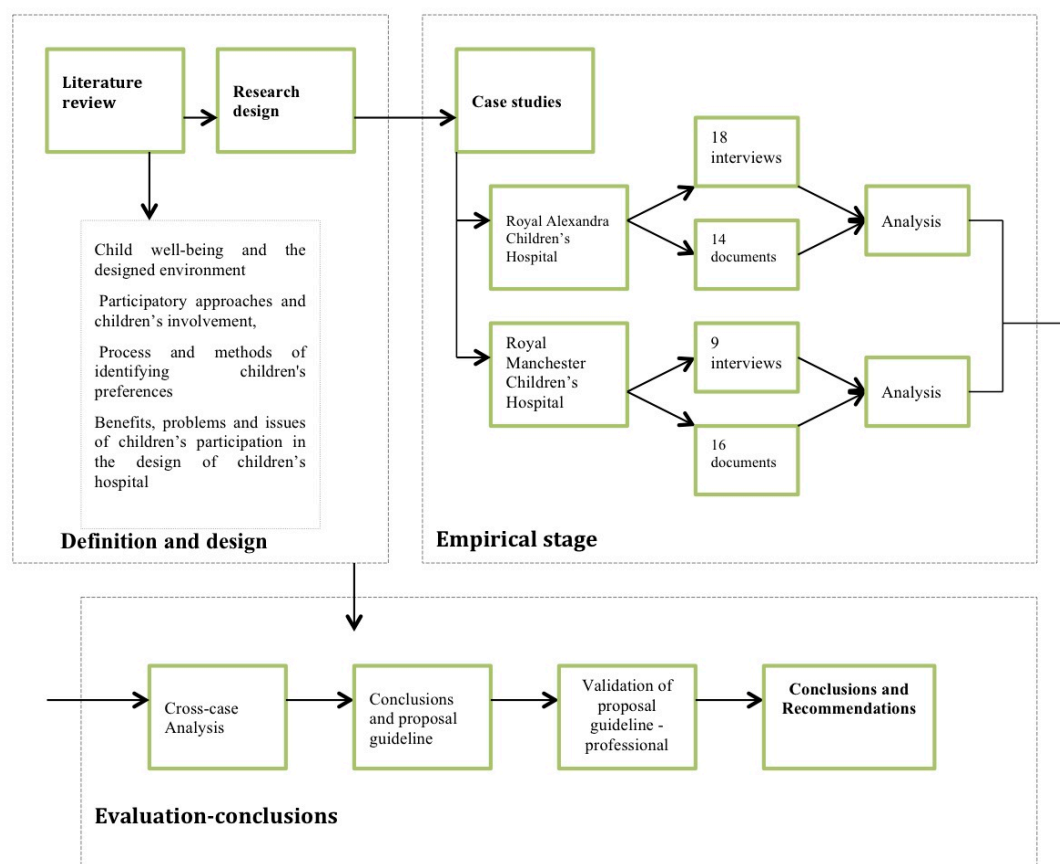


Figure 3. 2 data collection process of this research

Patton (2002) and Oberle (2002) express that there are no rules governing the number of interviews required for case study research, and the purpose of the study and available time and resources will affect the sample size in qualitative research. Accordingly, the total number of interviewees was 28 in the two case studies: 18 in Royal Alexandra children's hospital and 9 in Royal Manchester children's hospital. The number of interviews was conducted according to the following criteria:

- The researcher managed to inform the project staff about the purpose and questions of the interview. Some agreed to participate in the interviews, while some of them who had left the hospital were not accessible to participate.
- To obtain as much data as possible from the questions asked in the interviews, as not all the interviewees answer all of the questions.
- The researcher arranged the interview times and dates according to the interviewees' preferences. Participants completed interviews that ranged from 0.5-2.5 hours in length. (Although the average running time for the interview was approximately 45 minutes, a few of the interviews were longer as the participants in these interviews were interested in discussing some topics at length). Occasionally, participants were happy to carry out their interviews at the case study organisation to allow the researcher to access the appropriate documents. Otherwise, interviews were conducted through telephone conversation.

Saunders et al. (2007) identify that supplying the interview questions to the interviewees prior to the interview should promote validity by enabling the interviewees to consider the requested information and allowing them the opportunity to assemble supporting organisational documentation from their files. In this way, to make the process more effective, the researcher sent the questions to the interviewees prior to the interview meeting.

3.8.2 Data analysis: Content analysis

Krippendorff (2004:18) defined the content analysis as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use.” Holsti (1969) offers a broad definition of content analysis as such a technique, which tends to create inferences by objectively and systematically identifying specified characteristics of messages.

Leedy and Ormrod (2001:155) defined this method as “a detailed and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases”. This method, reviews forms of human communication in order to identify patterns, themes, or biases and to identify specific characteristics from the content in the human communications (Williams, 2007). In every content analysis, prior questions have to be addressed in order to allow for transparency and intelligibility in the process. Lasswell (1951) formulated a set of core questions concerning content analysis as: "Who says what, to whom, why, to what extent and with what effect?"

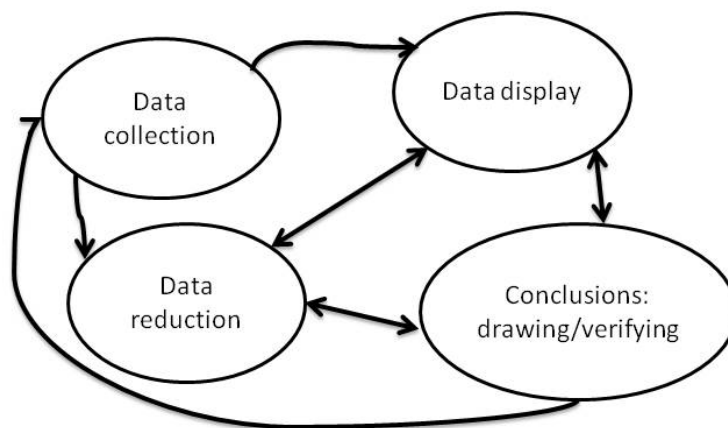


Figure 3.3 Components of Data Analysis: Interactive Model (Miles and Huberman, 1994: 12)

Figure 3.3, illustrates the interactive nature of different phases of analysis as proposed by Miles and Huberman (1994:12). The authors defined three main components of analysis as data reduction, data display, and conclusion drawing/verification. Data reduction is defined as the process of “selecting, focusing, simplifying, abstracting, and transforming the data” from field notes and transcripts.

Data reduction takes place continually throughout the life of any qualitative project even before collecting data and takes place until final report is completed. Data reduction after collecting the data refers to summarising, coding, identifying themes, clustering, making partitions and writing memos (Miles and Huberman, 1994). The purpose of data display is the same as data reduction, to organise and make sense of the data. “Looking at displays helps us to understand what is happening and to do something –further analysis and action - based on that understanding” (Miles and Huberman, 1994: 11). Data displays include many types of matrices, networks, graphs and charts. The next phase, which is conclusion drawing/verification, extends over the whole process starting from the beginning of the data collection process in order to point the data collection and lead to the next step of analysis.

For the purpose of this study, the form of content analysis used is similar to what is described by King (2004: 256) as “template analysis”. Identifying themes has been more important than verifying the number of times each theme has been referred to or has been discussed. Therefore, it has not been used to quantify the themes (or to engage any discussion on quantification of themes) in the analysed documents or data.

King (2004:256) defines template analysis as “the essence of the approach is that the researcher produces a list of codes (‘template’) representing themes identified in their textual data. Some of these will usually be defined a priori, but they will be modified and added to as the researcher reads and interprets the texts”.

Therefore, in this research, prior to data analysis a temporal list of codes has been developed to outline a descriptive label for the categories and codes, and to link each code to the research question it has derived from. In order to identify general issues the researcher has carefully read the interview transcripts. Thereafter, the analysis has been performed through cycles in order to identify variables. The variables may have been expressed by the interviewee that can be attached to the relevant code or to be created as a new code (the codes should not be attached to the interviewee but to the variables). For example: The variables articulated by the interviewee can be accorded a relevant code by the researcher or alternatively - if not previously identified - established as a new code. If the latter occurs, results within the analysed text are verified, and again examined for relating variables to the newly created codes. This

process will be carried out until the researcher identifies no new codes within the texts.

In order to perform the analysis of both of the case studies in this research, the NVivo software has been used. It has been expressed as a useful tool for the content analysis by Richards (1999):

- It provides a range of useful tools for handling rich data records and information about them for browsing and enriching text, coding it visually or at categories, annotating and obtaining accessed data records accurately and swiftly.
- The NVivo has tools for recording and linking ideas in many ways, and for searching and exploring the patterns of data and ideas.
- It can manage the complexity of the data. As the user links, codes, shapes and models the data, the software helps to manage and synthesize the ideas.

3.9 Ethical Approval

As Saunders et al. (2007) discuss, ethics relates to moral principles associated with norms or standards of behaviour that lead moral choices about behaviours and relationships with others.

A Research Ethics Committee (REC) is a group of people appointed to review research proposals to assess formally if the research is ethical. This means the research must conform to recognised ethical standards, which includes respecting the dignity, rights, safety and wellbeing of the people who take part (DH, 2011).

At first, this thesis has begun to identify and address how children can be involved in the design process of healthcare and it has aimed to interview with children who were involved in the design process as well as children who have been in hospital to find out their experience about the new hospital (see Appendix E for more detail). However, due to the long time needed for the NHS ethical approval, which is especially long when any children is involved with the research, limitations had to be placed on its scope. The researcher decided to interview the NHS staff, PFI and design team members, having to exclude any children from direct participation from

the research.

According to the “governance arrangements for research ethics committees: a harmonised edition”, published by the Department of Health in March 2011, REC review is required, where research relates to the areas listed in table 3.4 of the UK Health Departments’ responsibility. In page 13, paragraph 2.3.13 of this document states that the research involving staff of the services listed in table 3.9 who are recruited by virtue of their professional role, does not therefore require research ethics committees (RECs) review.

Table 3.9, this research require research ethics committees (RECs) review (department of health, March 2011)

Nation	Health Department	Services
England	Department of Health	NHS and adult Social Care
Wales	Department for Health and Social Services	NHS and Social Care
Scotland	Scottish Government Health Directorates	NHS
Northern Ireland	Department of Health, Social Services and Public Safety	Health and Social Care

Accordingly, the University of Salford ethical policy compels the researcher to apply for ethical approval before conducting the field study. Such a committee would like to know, for example, what would happen to interviews that the author intend to record. The Research Governance and Ethics Committee of the University of Salford granted approval for this research (Appendix A). The researcher conducted the interviews according to certain criteria:

- All participants being asked to complete and sign consent form prior to the interview (see Appendix F).

- Participation in this exercise was voluntary
- They had right to withdraw at any time and if so, all their files and paperwork will be deleted and shred immediately.
- They were informed of the purpose of the research prior to the interview.

3.10 Validation

As Kumar (2011) argues the validity of the findings entirely rely on the soundness of the research method employed. The research design should be sufficiently rigorous to provide support for the study to be believable and trustworthy. Trustworthiness within phenomenological research includes discussions on validity, reliability and generalisability (Remenyi et al., 1998). As the researcher interprets the data gathered in case studies, it can be criticised on the basis of lack of rigour, including bias (Yin, 1994; Robson, 2002).

3.10.1 Validity

Remenyi *et al.* (1998:115) argues, “In non-positivist research validity concerns whether the researcher has gained full access to knowledge and meanings of respondents. Hence the importance of good-quality access to enable such contact to be made within the research site.”

In order to increase the quality and validity of the qualitative research methods, triangulation is a strategy has been suggested by number of authors (Easterby-Smith *et al.*, 1991; Yin, 1994; Stake, 1995; Darke *et al.*, 1998; Gillham, 2000; Patton, 2002). Stake (1995:114) pointed out that triangulation includes, “data triangulation (from other sources), investigator triangulation (use of observers), methodological triangulation (using multiple sample types and sources).”

Yin (1994:91), states that, “a major strength of case study data collection is the opportunity to use many different sources of evidence.” Further, Golafshani (2003: 604) commented that, “engaging methods such as, direct observation, interviews and recording will lead to more valid, reliable and diverse construction of realities”.

As a result, in this study, the researcher has kept records of research design decisions and used different sources of evidence, such as semi-structured interviews and document analysis. The types of triangulation that has been used in this research is described below:

- Data triangulation: Multiple sources were used for data collection, (see section 3.8)
- The design guidelines were discussed and validated by professional experts

3.10.1.1 Evaluation of the guidelines

A handful of the experts who had been interviewed during the data collection were asked to evaluate the proposed guidelines. The participants were selected based on their willingness to participate in the process and their familiarities with the project. The objectives of the evolution were explained to the participants through email exchange. In order to prevent any biased evaluation by the participants who were involved in the early phases of the research project, a few numbers of new participants were also involved during the evaluation process.

3.10.1.2 Validation participants' background

It was felt important to validate the established guidelines through contacting the professionals in this field. Table 3.10 presents details of the respondents of validation stage. Despite the constraints of the limited number of evaluators, they were very experienced in this area.

All experts who reviewed the guidelines found it easy to understand its components and a useful tool. One of the experts stated, "I can confirm that it reads OK and is without errors." (Interviewee B, Case A)

The participants agreed that the framework had good relevance with the research context. The main points of these guidelines from participants' point of view can be concluded as following:

- Parental consent

- School consent to facilitate time out from class if needed
- Times of day that young people meet with professionals – evenings or weekends to be agreed
- Roles and responsibilities of the young person – realistic and achievable
- Support for the young person to be part of the process – access, support, who, what , where and when
- How the young people will know that they have been effective – measures agreed (proactive cyclic YP feedback within the process)
- Feedback mechanisms and sharing outcomes
- The conclusions drawn from children’s ideas should be discussed and evaluated with them in order to eliminate any potential misunderstandings
- Inclusion of non-patient children (“You mention non-patient children which I agree is important, might be worth specifically mentioning input from siblings as they are often affected by having a brother or sister frequently in hospital, and may spend a lot of time in the hospital themselves so facilities for siblings and families are very important.”)

Participants provided some comments in the way that children (i.e 1-18 sometimes) are engaged with:

“It might be worth considering how you deal with the pre and post adolescent children as their viewpoints will be quite different and a 6 year old may not want to engage in front of a 16 year old and vice versa.”

“I think it should include the views of children with special needs or learning difficulties as their needs may be over looked. Obviously issues such as wheelchair access and adequate bathing / toilet facilities will be reviewed by the project lead.”

The evaluation of the proposed guidelines can significantly improve the guidelines. As one of the participants made the following comment, which was addressed by further development of the proposed guidelines:

“I think you should make it clear that the project lead should be a clinician who will have insight into the nursing care required by children being admitted to hospital and the needs of parents and carers who accompany them.”

Table 3.10, List of professional experts that have validated the guidelines

	Position and experience
Director of 3ts, Estates and Facilities (Case A)	Director of 3ts, Estates and Facilities, Brighton and Sussex University Hospitals NHS Trust. (Worked on major investment programmes and projects in the NHS for utilising public funding and PFI. Worked on some of the largest projects in the NHS, being directly involved in well over £1 billion of investment to date.)
Interviewee F (Case B)	Architects (working on the design of different children's hospitals)
Interviewee D (Case B)	Patient Partnership Manager (Influencing the new development hospital board for the patient involvement, and looking that way to make sure that children and young people were involved)
Interviewee I (Case B)	Art project manager (working with people with special needs, involved in assisting development of consultation)
Interviewee B (Case A)	PFI Estate Manager
Interviewee H (Case B)	Art company Director,(exploring alternative roles for the arts and artist within healthcare)

The researcher has used these tactics to increase the validity of the research.

3.10.2 Reliability

Reliability has been referred to by Hammersley (1992: 67) as “the degree of consistency with which instances are assigned to the same category by different

observers or by the same observer on different occasions”. Likewise, Kleven (1995: 13) argues, “reliability is a question of whether repeated investigations of the same phenomenon will give the same result”. Although it has been discussed that “all situations and organizations are different and thus the same results cannot ever be obtained again and consequently reliability per se is not a central issue” (Remenyi et al. 1998:181)

Yin (2003) articulates two tactics to achieve reliability: a) the use case study protocol and b) the development of a case study database. In this research, reliability was obtained by keeping logs of the research activities executed within each case and linking logs with documents, reports and interview transcripts in an easily retrievable format. Thus, any researchers could have access to the information used in the research easily.

3.10.3 Generalisability

Generalisability concerns “...the probability that the patterns observed in the sample will also be present in [the] wider population from which the sample is drawn” (Easterby-Smith *et al.*, 1991:41)

Gummesson (2000) argues that good qualitative research should enable one to gain an understanding of organisational processes and he argues that the generalisation can be understood as involving the use of in-depth studies based on exhaustive investigations to identify certain phenomena. As it is pointed out by Remenyi et al., (1998) based on such exhaustive investigations, the understanding attained of the process occurring in one setting can then form the basis on which such processes are understood in other, similar settings.

Generalisability was strategy in this research through the development of the guidelines, which are generic and theory based generalising the findings of this research to theory, which could be used as a vehicle to examine other similar cases. It is always difficult to generalise from one or two cases to the next (Yin, 1994), therefore, the sampling strategy was not focused on finding ‘representative’ cases.

Walsham (1995) argues that through providing a rich description of a case, it is

possible to generalize to 1) concepts, 2) theory, 3) specific implications, and 4) rich insight. Subsequently the gained results can be applied to other cases. Through extensive data description for each case study in the realm of replication logic (Yin, 1994) it is possible to obtain the result, which would be accepted for a larger number of similar cases (generalization).

Therefore, if the researcher has sought to provide as detailed descriptions of the two cases as possible and, consequently a set of main conclusions in the form of guidelines for future projects have been drawn.

3.11 Summary

This chapter has described the method used in this research. Returning to the research aim and objectives, the researcher selected interpretivism to guide the research. Then, the use of the case study approach was described as an appropriate strategy for the purpose of this study. Subsequently, the different research techniques employed through this research were presented and data collection and analysis process were described. Finally, the chapter also discussed aspects related to the validation of this research.

The next chapter presents and discusses the research results.

4. FINDINGS: CASE STUDIES A

4.1 Introduction

Chapter three described the design and development of the method used in this research including the processes of data analysis. This chapter focuses on describing the collected data and their analysis within the context of the research questions.

This chapter presents a detailed description of one of the case studies developed. In this case study, qualitative data was collected over a period of five months. The researcher developed 18 semi-structured interviews, as presented in session 3.5.4. Data analysis has been performed with the use of content analysis, which supports the identification of the fundamental categories of thinking regarding the design process, the children involvement process and its main outcomes, as well as the factors affecting involvement. In this chapter direct quotes from the interviews are used to substantiate the arguments.

4.2 Case study A: Royal Alexandra Children Hospital

The new hospital is one of the largest dedicated paediatric hospitals within the UK, which has a long history of serving the community for more than 120 years. The new £37 million Royal Alexandra Children's Hospital is 15,500m², which is three times bigger than the size of its original structure. Improving accommodation for both patients and the families is one of main objectives of the new structure. The accommodation comprises of single, two bedded and four-bedded units. (Document J)

The Royal Alexandra Children's Hospital originally stood on Dyke Road in the Montpelier area of Brighton (Figure 4.1). The red brick and terracotta building, in the Queen Anne style, was opened in 1881. The new hospital has been relocated to the other side of Brighton to the Royal Sussex County Hospital site (Figure 4.2,) in order to integrate clinical and architectural aspects as well as the construction. Every inpatient bed has its own pull-out carer bed so parents can stay with their children during their stay in hospital. Moreover, the new hospital building provides an extensive range of medical and surgical services. Around 100 medical and surgical beds are provided on the 7th, 8th and 9th floors of the building, doubling the number of

beds as compared to the old building. Family accommodation is also provided on the 10th floor, which comprises of ten en-suite bedrooms, kitchens, living rooms and terrace (Figure 4.3). It is intended to create a home away from home for patients and their families (Document A,B and G).



Figure 4.1 the original site of Royal Alexandra Children's Hospital (Document G)

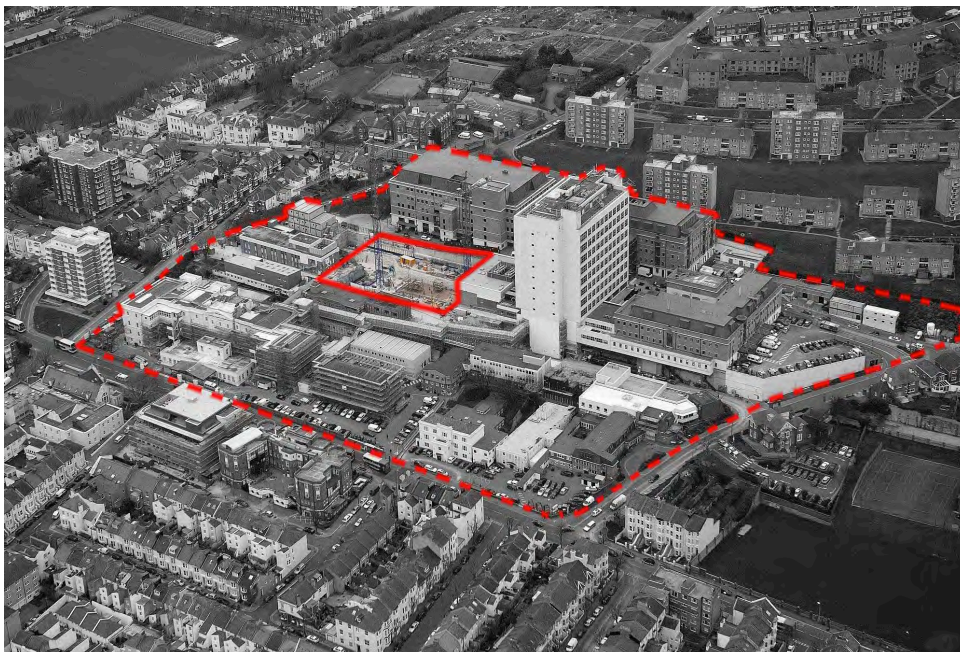


Figure 4.2 the site of new Royal Alexandra Children's Hospital (Document G)

The new structures and its unique layout make a more convenient environment for the mix of patients on the basis of age, sex and condition that provides more privacy and dignity (Document J).

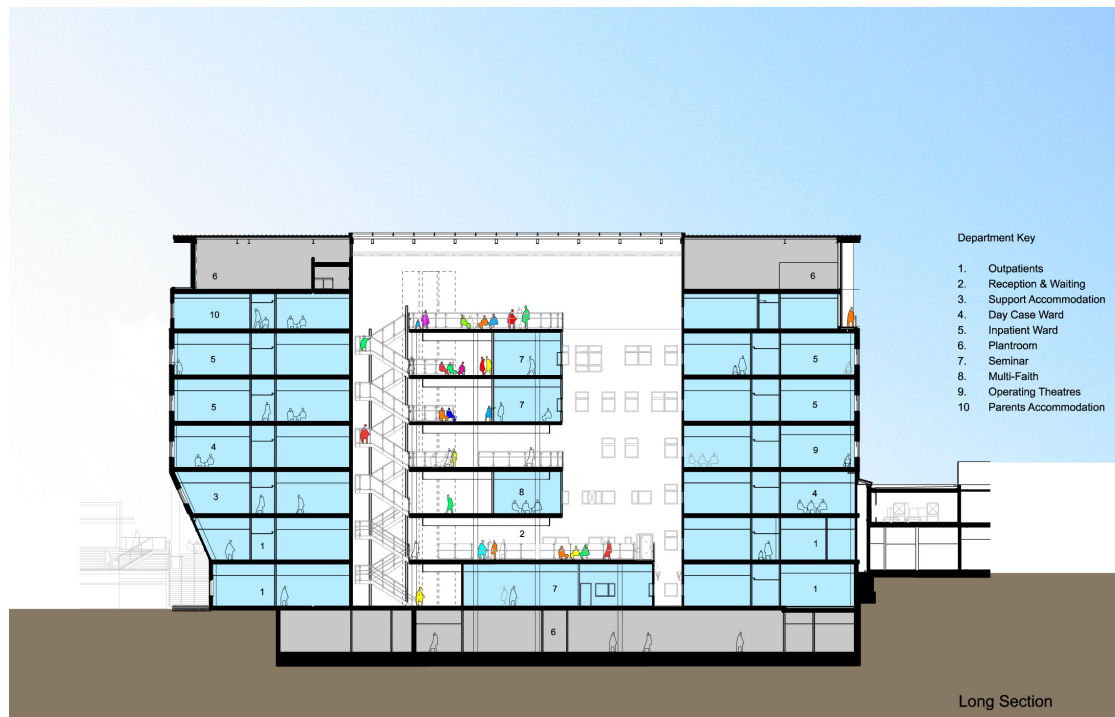


Figure 4.3 The Royal Alexandra Children's Hospital (Document E)

Figure 4.4 illustrates the depicted historical ark and animals, which inspired the interior design of the hospital building. Every story within the building has been designed and inspired by one animal as it can be seen from Figure 4.5.

As the project architect, Zucchi at 2009 Healthcare Estates Welsh Conference and Exhibition (Document G) expresses:

“The overall theming of the Royal Alexandra Children's Hospital as ‘The Children's Ark’ is a reassuring and optimistic image around which we can integrate the interior design, art, graphics and way-finding, in way that children of all ages and adults can respond to in a positive way.”



Figure 4.4 depicted historical ark and animals taken from document G

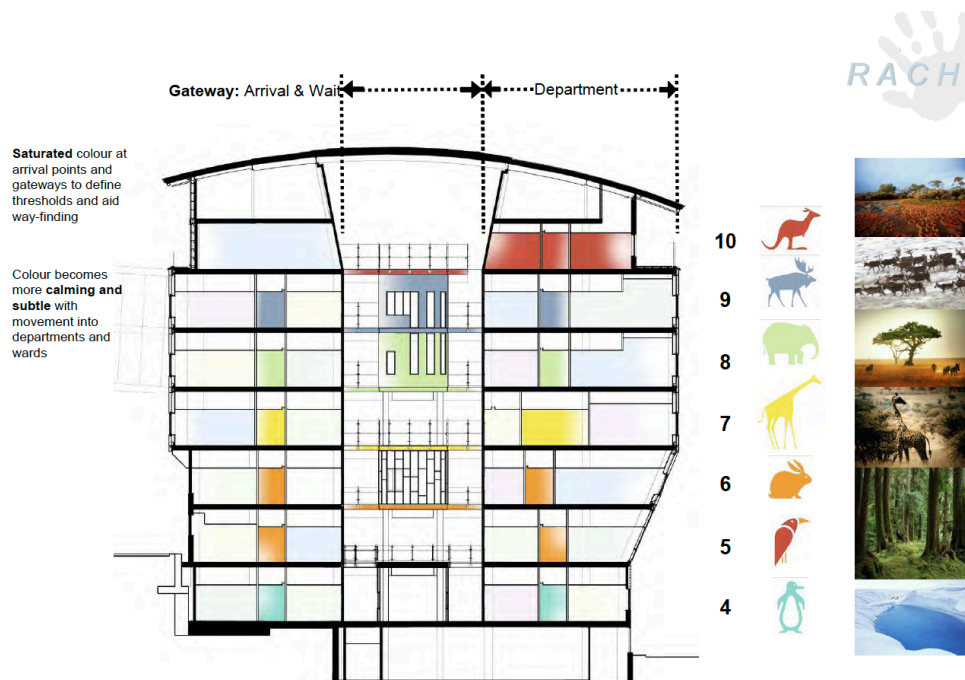


Figure 4.5 illustrates the design of each floor according to one animal, taken from document G

4.3 Design Process

Figure 4.6 describes the project timeline, which consists of two complementary parts, the first (top) describes a generic overview of the stages of the design process, and the second (bottom) presents the stages of children’s participation in the project life cycle. As it can be seen from figure 4.6 the participation of children in the project cycle was not a continuous process. It occurred twice: firstly, in December 2003, for project identification (which fed information to the design brief); the second involvement was from the middle of 2006 until the end of project.

Although the Strategic Outline Case (SOC) outlining brief details of the project was approved in 1998, the project’s administrative complications approval was delayed until 2001. Eventually, the project’s notice was advertised in the Official Journal of the European Union (OJEU) in March 2002 and three teams responded to the advertisement. Following the Final Invitation to Negotiate (FITN) in March 2003, two teams were selected. Planning permission was granted in January 2004 and the construction of hospital proceeded on site six months later. The construction project was completed on time and to budget and the hospital opened in June 2007 (Document H). The general PFI procurement process for the client is shown in Appendix D (Mohamed et al 2002).

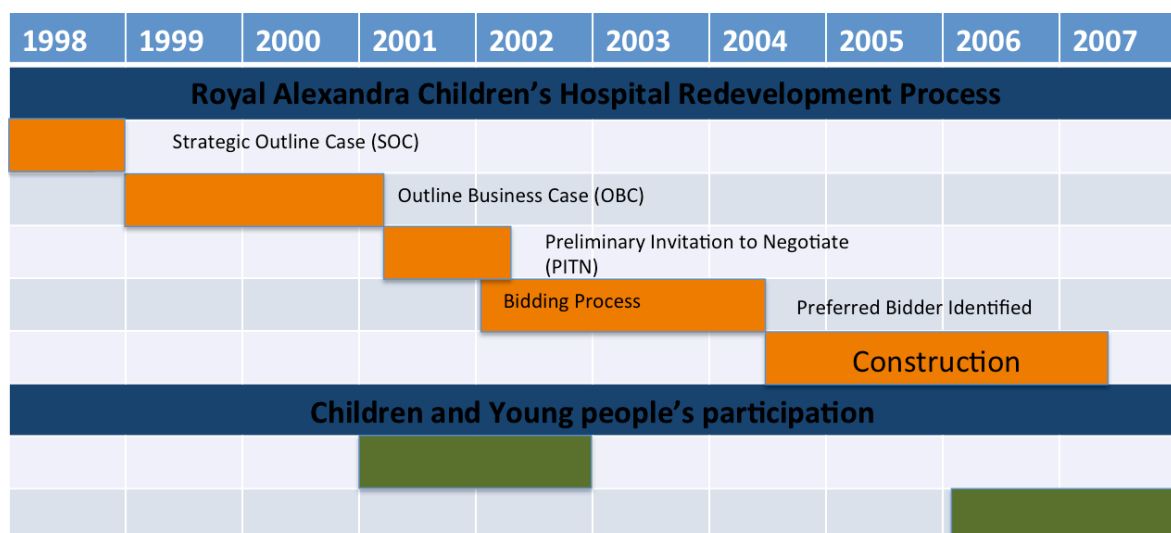


Figure 4.6 Project timeline

The following section presents the details of the participatory process as described by the interviewees. It discusses why involvement was needed, who have been involved,

how involvement was conducted and the main problems that the project team faced during the design process. The involvement of children and young people in this case study is analysed based on participatory design process cycle as presented in the literature review (see section 2.11): project identification; project design; implementation and evaluation; and celebrating and documenting lessons learned.

4.4 The children's participation process at the Royal Alexandra Children's Hospital

The redevelopment plan aimed to create a welcoming environment and provide the best possible setting in which children could receive treatment and recuperate. The two key elements in the success of the development are (NHS Trust, 2007): recognising the needs of individuals, most notably young people and their families and high quality services for families and children through effective engagement with users (see Figure 4.7).

Architect Director Benedict Zucchi said "As the design began to take shape, it became known early on amongst our team as the Children's Ark, an image that crystallised a number of important themes: from the idea of a 'sustainable' community centered around the family to the nautical spirit of Brighton and the boat-like form of our building. It is a reassuring and optimistic image, around which we have integrated architecture, engineering, art, way-finding and interior finishes, colours and furniture in a way that resonates with children, families and staff". (BDP, 2007)



Figure 4.7 Key elements of redevelopment plan, taken from document G

The architectural company developed the concept of the development process (Figure 4.8) within which people are placed at the heart of the plan, focusing on users' needs. They explain the project plan as follows (Document G):

“Our user and children-centred approach extended to all aspects of the design: from our clinical planning studies, which led to our departmental organisation, placing inpatients above and outpatients below clinical support, and ward layouts, which place all the bedrooms on the sea view side, to thoughts about the development of lighting, user-friendly environmental controls and child-scaled furniture and windows.”



Figure 4.8 concept of the development process created by architectural company, taken from document G

Children and young people's involvement and engagement in the design process was carried out in two different times through out the whole process:

The first process of engaging users started through consultation exercise with children and young people and their parents/carers in December 2003, just after the appointment of the preferred bidder. A group of children were invited to do a piece of work in a theatre company and at the same time, Alex Play Specialist extracted ideas and suggestions from children and young people for the new hospital.

The second phase of user engagement happened in 2006, when another consultation exercise was carried out through a board meeting. Meetings were often held at weekends and out of school hours and during holidays in order to not to have clashes with their school times. The board had the opportunity to receive messages and

feedback from the public and service users on opening the children's hospital at Thorpe Park via the PFI team (Interviewee F).

Each meeting had “a standard agenda which had regular items such as Apologies, Minutes of previous meeting, matters arising, issues raised by children/young people, PFI Project Director's report and then each meeting would have different issues to discuss e.g. Farewell and opening ceremonies, artwork, DVD filming, web site and anything that needed to be raised.” (Interviewee H)

4.4.1 Project Identification

The project was built upon the notion of having the actual users as participants in design. Interviewee E stated *“starting of with a meeting with children, hospital staff, local people and consultants to work out what we wanted from children's hospital.”* All started *“with design of building; shape the concept and what would be in the building, how the building should function, what are the fears and worries about children in respect of hospital and how that might impact on the design.”*

The involvement in project identification process took place in December 2003. As part of the consultation, Alex Play Specialist worked with a wide range of children at the Children's Hospital using questionnaires and model making to extract ideas and suggestions for the new hospital (Document A). At the same time the project team used an actors' company to engage everyone (children, young people and carers) in what the new hospital should look like. A workplace theatre specialist, children, 6 parents and 6 staff had been involved by this stage. This information was then fed into the design team brief. The project team made the final selection of the preferred design. Outcome of the involvement of children at this stage were described at document A as *“all this produced a substantial amount of information for the Trust and the Architect Company and laid the foundation for the Children's and Young People's Board.”*

As shown in figure 4.9, the level of involvement at this stage of the project cycle, based on Hart's ladder of involvement, can be classified as “consulted and informed”. According to Hart (1992), at this stage children and young people gave advice on projects, which were designed and run by the team. Children and young people were

informed about how their input would be used and understand the process and their opinions are treated seriously.

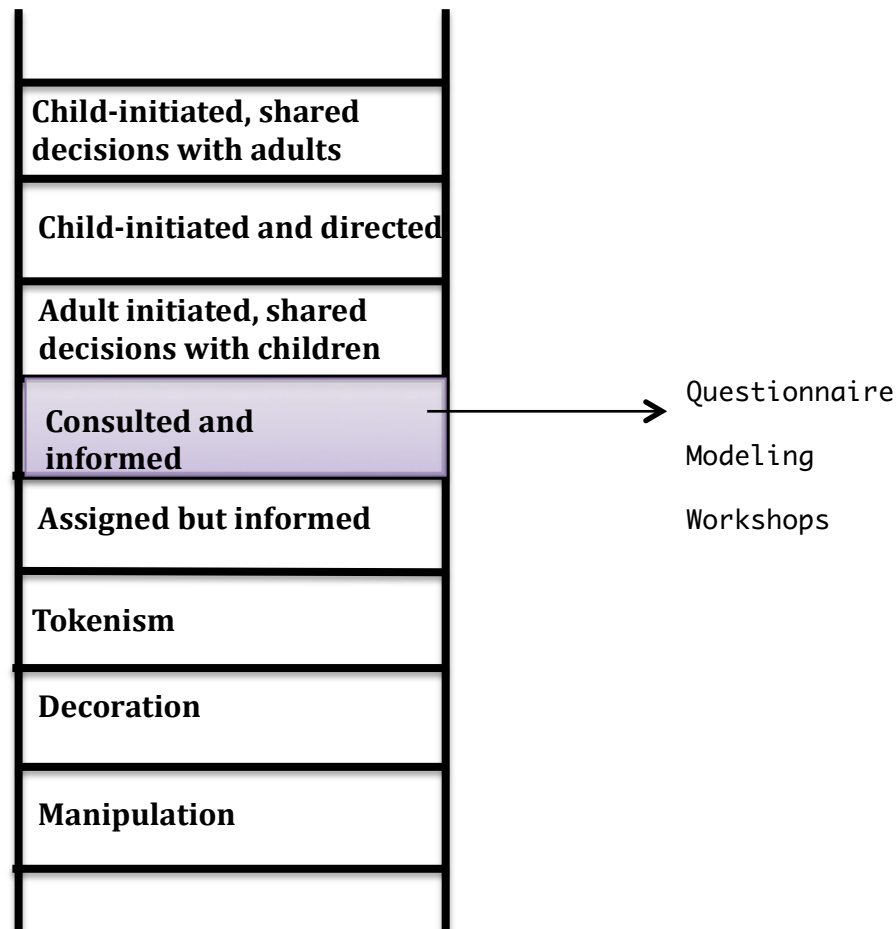


Figure 4.9 level of involvement in Project Identification stage (Royal Alexandra Children Hospital)

As an example of using children's comments in the art project, the artist used his own son's (who was one of the old hospital's patients) experiences and describes:

"My son who is now 23, from the age of 7 got a serious illness and spent time in Guys hospital and in the old Royal Alex. Over 10 years he was in and out of hospital. So I had lots of experience as a user of hospital and my son as well.

My son's experience was a feeling of isolation from nature and the outside world in some sense. The old Royal Alex was beautiful in terms of being an old Victorian hospital and because he was sick he had his own room to treat and once he came out he was in recovery in a very simple room without access to nature. I guess my

response was I wanted some thing felt natural and organic. I wanted to create space echoing the natural world but also looking at creating a sense of calm and simplicity.”

4.4.2 Project Design

A different level of involvement and methods were used to consider children’s views and preferences in the second stage of the project cycle, project design, at Royal Alexandra Children Hospital.

The Trust Director of Facilities and Capital Development proposed the idea of the Children’s and Young People’s Board (C&YPB). *“The essential element of the Children’s and Young’s People Board is that they can and do make a real difference to the way in which we deliver paediatric services in the new hospital”*(document A).

The Children’s and Young People’s Board consisted of 10 members, either current or former patients of the hospital from a variety of counties. They were aged from 9 up to 18 years of age, and were both male and female.

In April 2006, the first meeting of C&YPB Members was held and chaired by Chief Executive of the Brighton and Sussex University Hospital NHS Trust. The board’s members were involved in different parts of the design, such as: (a) designing the cubicle curtain; (b) furniture/color scheme; (c) the artwork; (d) the title of the each wards and rooms and (e) the food (its quality and actual menu). The level and methods of involvement of these is described later in this chapter.

As shown in Figure 4.10, the levels of involvement in this stage consisted of “Adult initiated, shared decision with children”, “Child-initiated, shared decisions with adults” and “Consult but Informed”.

One of the best examples of “Adult initiated, shared decision with children” category of participation in this hospital comes from the design of the cubicle curtain. Various samples of curtain designs were taken to the Children's board, but not chosen so “Adult initiated, shared decision with children” is true participation because, the projects at this level are initiated by adults, however the decision making is shared with the young people.

Moreover, it was agreed that the children should put forward their own individual designs through a competition, with a prize for the best. Once the designs were ready, the Children's Board decided which options they liked and eventually their decisions were selected by a panel of staff (Interviewee H). So, the level of involvement at this part of project can be classified as “Child-initiated, shared decisions with adults”. This happens when children and young people initiate projects and decision-making is shared between users and adults. Children and young people initiated the design of the curtain through the competition and the decision-making was shared with adults.

Another example of “Adult initiated, shared decision with children” level of participation is the design of seating in the outpatient area: *“we had three different options and those options were presented within C&YPB in a separate meeting and then they sent back to me which options they wanted to go with”* (Interviewee N). At this stage children and young people played an essential role in decision-making: adults initiate different options of designs and the decision-making is shared with the young people (see Appendix H).

Another level of involvement at this stage was “Consult but Informed” which can be seen in the design of the big mosaic tiles. This community mosaic was created in 2005 by about thirty children from a local school and college through the workshop day. An artist ran the workshop and children and young people were informed about how their input would be used. A second example of this level of involvement can be seen in the design of the information pod in the hospital. Appendix G describes the details of this part of the project (Information pod design).

Another example of this level of involvement was designing a piece of artwork, which was made of plastic found on the beach. This work was carried out outside of the hospital and children of all ages from a local school at Brighton were involved. Its designer (Interviewee P) said: *“children came every day and made things and talked about issues and put things and got involved in the whole of process.”* The designer described the key success of this work as *“on regular basis, I had children coming and doing the art class every Wednesday on a weekly basis and I did assemblies. The best thing was when children want to come, the door was always open so they could come and talk personally and individually. I found out quite a lot when they came and talked in a personal and quiet way. It seems to be a kind of issue they care about.”*

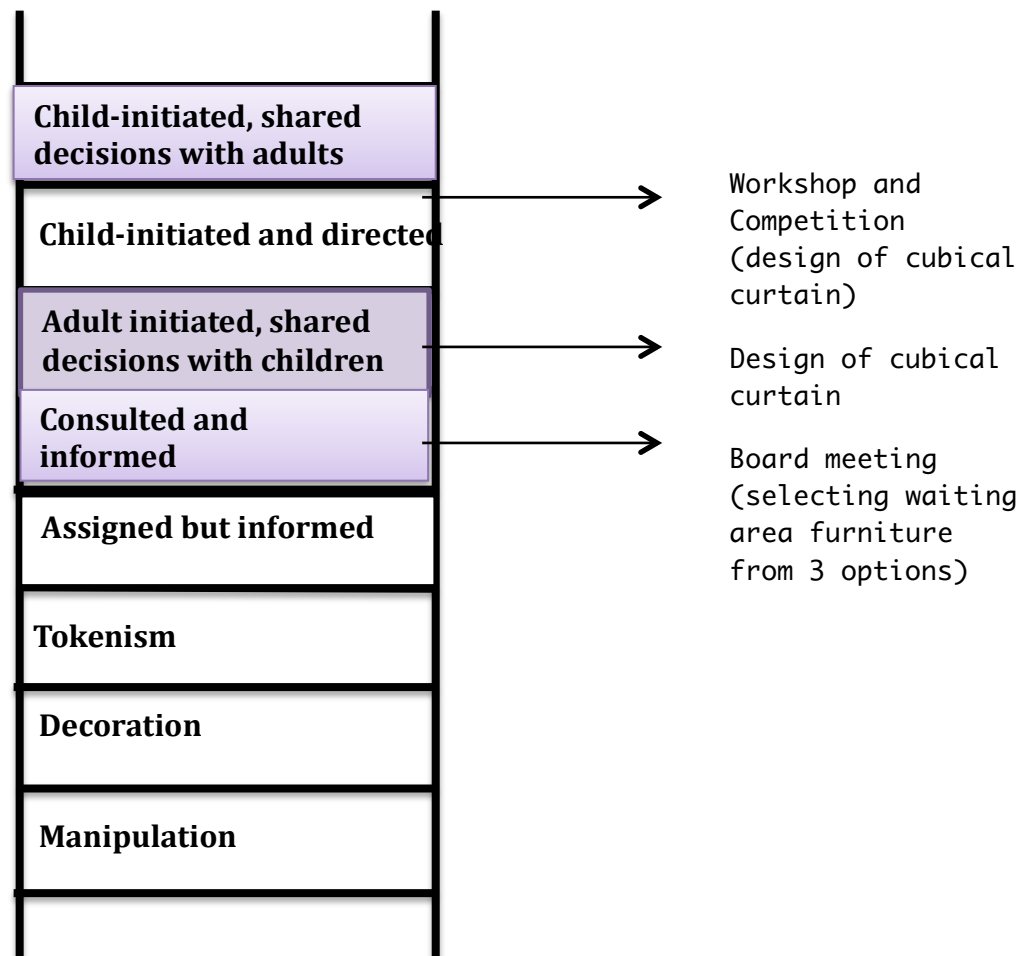


Figure 4.10 level of involvement in Project design stage (Royal Alexandra Children Hospital)

Finally, the design team and the Trust tried to employ previously experienced ideas that were successful in other children's hospitals. Two of these ideas are illustrated in Figure 4.11 and 4.12. Figure 4.11 shows a motorbike, which the child can ride, towards the operation room, as a means to reduce his/her stress and anxiety. Also, as it can be seen from Figure 4.12, lower windows are designed for children in order to be able to see the outside even when they lay on the bed. Children's distraction during their illness period can improve their healing process.



Figure 4.11 Motorbike that children can use to go to operation room



Figure 4.12 lower windows, taken from document H

4.4.3 Implementation and Evaluation

This stage of the project lifecycle played an essential role in order to assess the long-term impact and sustainability of the project. At this stage the involvement of children

and young people was through C&YPB and its level was “Consulted and informed” (Figure 4.13). As an example, children sampled all the food and then decided what they want to add to the menu. This stage of the project was designed in consultation with children and young people. They gave advice on projects designed and run by adults. The designs were then redesigned and again shown to the C&YPB. Some members of C&YPB were contacted at certain times to review examples of particular items at the board meeting where its pros and cons were discussed and voted for and against it (interviewee F). The PFI led the analysis of data with present members of the children’s board.

“They always come out with idea and we would always try to implement them if we could.”(Interviewee P)

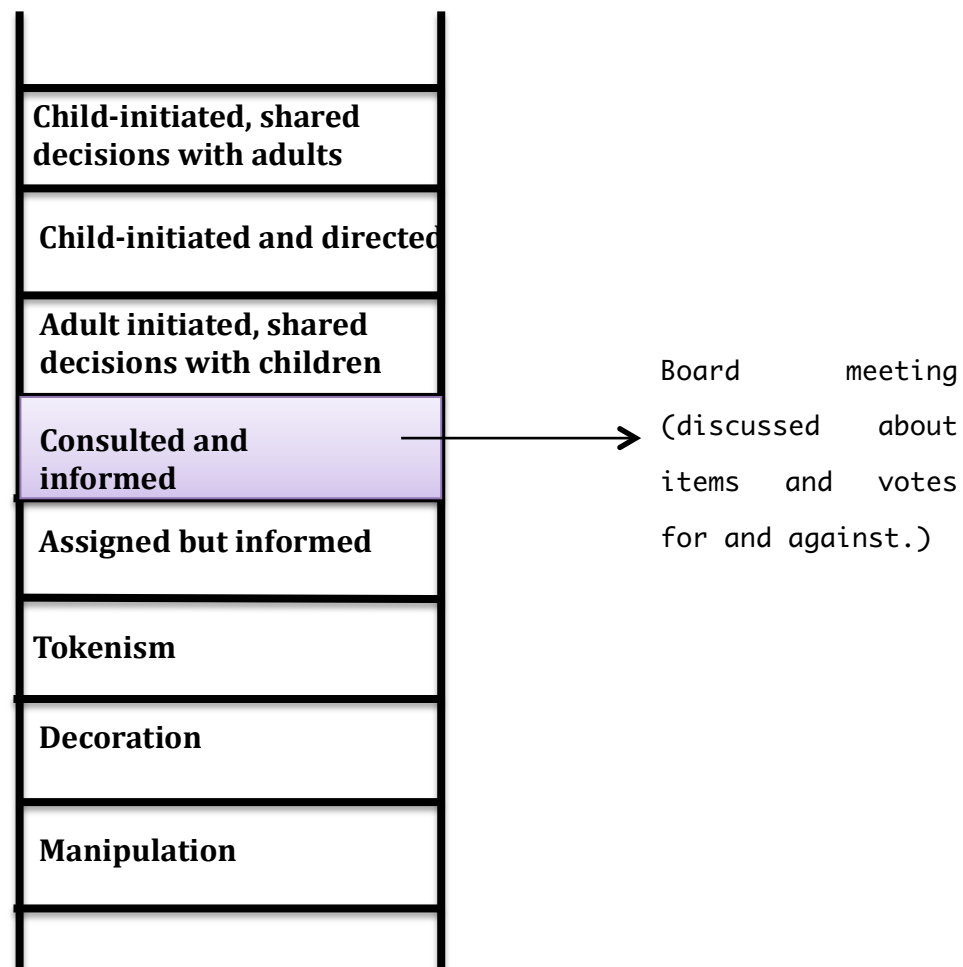


Figure 4.13 level of involvement in Implementation and Evaluation stage (Royal Alexandra Children Hospital)

After opening the new hospital, visitors were asked to fill in an evaluation form. The

team planed to keep the C&YPB alive to discuss the issues arisen by visitors with the C&YPB's member, however due to some problems (described in section 4.3) the board has no member at that moment. There is a leaflet in the hospital to attract children to become members of the board to keep it running.

4.4.4 Lessons learned

In Royal Alexandra Children's Hospital, lessons learned were documented in two different ways, by adults alone and as well as jointly by board members and adults. Children's board members, Terrier TV (Video producer), representatives of clinical staff, PFI member and the design team had been involved at this stage. Involvement of children at this stage happened through writing a video script, filming and being filmed interviewing hospital's staff and trust board members. They were also involved at post-production of the DVD, which can be considered "Assigned but informed" (figure 4.14).

In order to have a "Assigned but informed" participatory process, the following requirements should be fulfilled (Hart, 1992):

1. The children understand the ultimate goal of the project;
2. The children know who makes decisions about their involvement and why;
3. The children have a meaningful and influential role;
4. The children volunteer for the project after the project is explained to them.

In this level users are appointed a specific role in the process and they are informed about the reason and the process of their involvement. The main goal of these documents was raising awareness in the local health economy of the new children's hospital facilities.

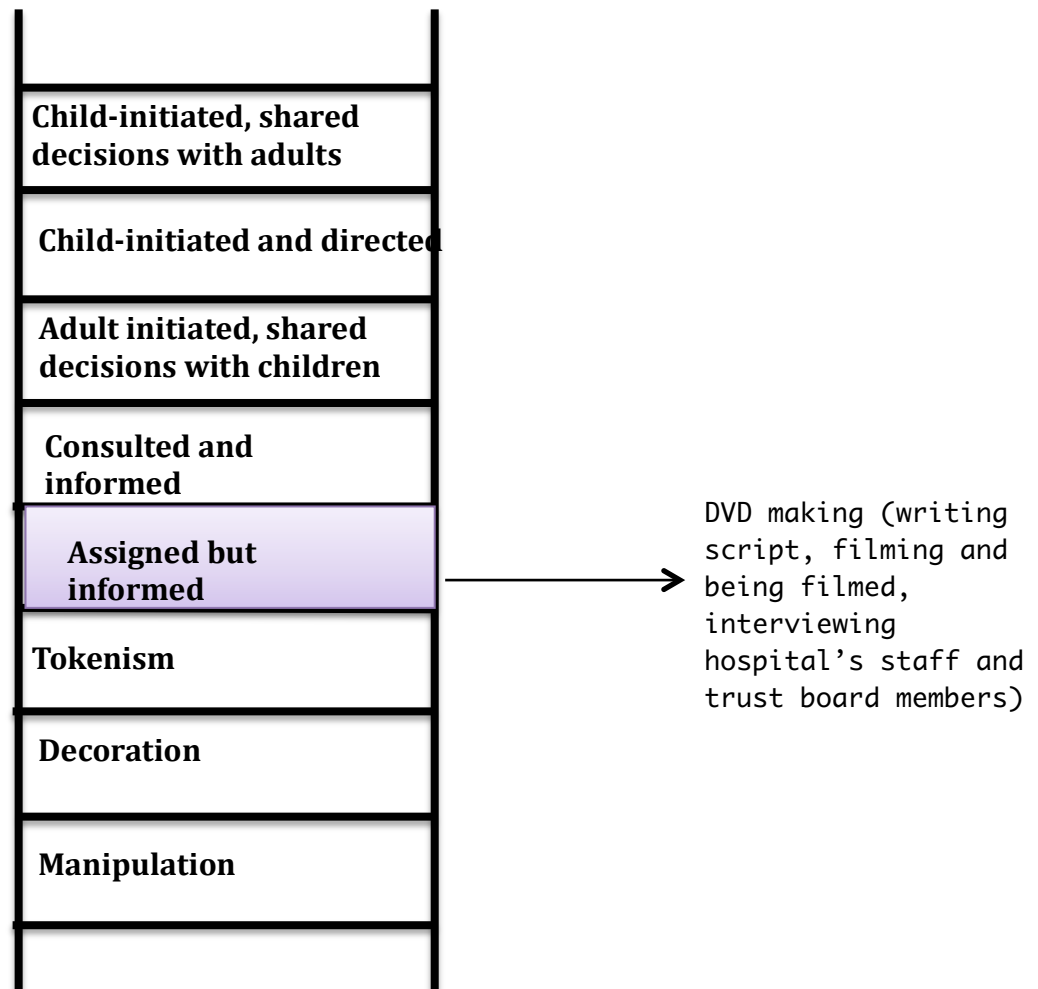


Figure 4.14 level of involvement in lesson learned stage (Royal Alexandra Children Hospital)

4.5 Benefits of user involvement in the design process as identified at the case study

As it was not possible to interview children in order to get access to their views by researcher, the researcher tried to ask people who worked directly with the children in order to obtain feedback from them about the hospital environment and process of involvement. Also, the outcome of the hospital environment and design process from children and young people's point of view, which were documented previously (Document A), has been used in this research. Initially the analysis of the hospital environment performed by the children and young people is presented, and followed by discussion of the design process from a board member's point of view.

The design team decided to engage children and young people to achieve different benefits. The benefits identified in the Royal Alexandra Children's Hospital (Figure 4.15) are similar to the espoused benefits described in the literature (presented in section 2.7). One benefit, which was identified in this case study and was not explicitly addressed in the literature, is the possibility of avoiding duplication in the design process. In this way, their input can be used as an integral part of the design rather than incorporating it at a later stage. Benefits were expected for the project and users, according to interviews and document A:

- **To see everything from a child's perspective**

The project administrator mentions in interview H, evidence that the environment is child-friendly. There is a piece of art in the hospital which adults don't like it but surprisingly they found that children spend lots of time during the day around it.

- **Their input have been used as an integral part of the design rather than trying to incorporate it at a later stage.** (Interviewee E)

Interviewee E mentioned a quote from one of the C&YPB Members was "it will be the most amazing, exciting and enjoyable hospital for children and young people ever built, because children and young people helped design it".

- **Connecting to the local community**

The project also provides opportunities for the design team and staff to connect and work with the wider community. Interviewee F described that a competitions were run at local schools such as poster competition with prizes being a tour of the hospital to motivate and communicate local community.

- **Involving in the decision-making and feeling of ownership to empower participants**

One of the main agendas behind user participation is empowerment of users (presented in section 2.7.1). The children felt that they had influence in the project (presented in document A):

“This is fantastic. Everyone has been involved, including young adults making decisions about the design of their areas.” (age 18)

“I really enjoy being on the children and young people’s board because of its way of putting forward children’s views.” (age 9)

“This is a rare opportunity to be involved in one of the country’s most incredible new hospitals.” (age 17)

“It has been an amazing opportunity working with the NHS. The play centre is amazing and although it’s for small children it’s brilliant.” (age 12)

- **High quality services for families and children through effective engagement with users**

The design of the hospital was successful from C&YPB members’ perspective. Following are some of their comments about the hospital environment (document A):

“A landmark building has been built in Brighton” (age, 15)

“The colors make the hospital look clean” (age, 13)

“I think the new hospital is a great success and I’m looking forward to visiting it in the future” (age, 12)

The majority of the feedback was positive. As an example, one of the artists had a child who is now 17 and she had to stay at the children’s hospital for 8-10 hours, found it quite simple and convenient to stay and in some sense beautiful. The paediatric matron mentioned that people’s first impression is very positive and they like the open space, which is bright and colourful.

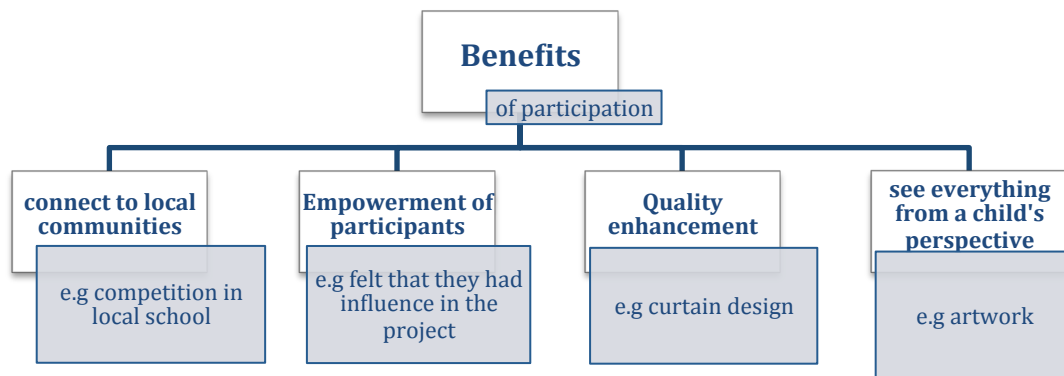


Figure 4.15 Benefits of user involvement in Royal Alexandra Children Hospital

The teaching staff that worked with the children regularly described their feedback as positive (interviewee J). She explained that most of the children like the environment of the hospital and patients who have to come there regularly feel some sense of ownership.

Much effort has been made to create a calm and friendly environment. Enhanced quality of the hospital environment is manifested through new interior design.

4.6 Problems in the design process

A main principle of the design process of the Royal Alexandra Children's Hospital was to make the planning and design process transparent to everyone and to be very clear about the extent of children's involvement in the process. The children's participation in this project corresponds to four of the five types of participation depicted on the top five rungs of Hart's Ladder. Despite all the success of the project, there is still need for improvement to the design process based on information gathered from the interviews and documents.

The involvement of children in the design process is perceived as a significant risk due to the fact that badly managed process can cause construction costs increase, miss understanding of children's views, rework, changes and consequently time delays in project delivery. As stated in the interview with the project architect: *"interaction with staff is more straightforward, even if they are not accustomed to talking to*

architects". Technical issues of hospital design e.g. infection control, time pressure, costs, dedicated person to work with C&YPB all the time and lack of motivation in order to become a member of C&YPB were some of the issues identified (Figure 4.16).

Having all the children together at the same time was also difficult, as mentioned by most of the interviewees. The meetings had to be held during holiday periods and often had to be in weekends or evenings, as they had to be in school at other times, but younger children can't attend the late meetings and sometimes some of them wanted to attend family parties or go on holiday. As a result, often not all the members could attend the meetings. In the cases when that happened, children were kept informed and involved through email.

Furthermore, trying to incorporate children's views into the hard facility management is very difficult due to technical issues of hospital design such as infection control or accessibility. The involvement of children in the design stage was mostly focused around the interior design and ambient environment features. The interviewees C said that they couldn't involve children in other design decisions as children could not understand complex design decision making and there were a lot of clinical issues, such as cross infection, to take on board when looking at engaging children.

Moreover, the lack of having a dedicated person to work with C&YPB all the time is mentioned by couple of interviewees. The researcher found that there was no one who knows about all the process of involvement. As interviewee Q pointed out:

"It needs someone dedicated to have time to be able to do that, to go to school and show them what we want, give them a presentation, to get the feedback and be able to collect the feedback. It takes time and needs someone dedicated to the job."

Furthermore, C&YPB consisted of only 10 members, causing problems, as pointed out in an interview (Interviewee Q):

"I don't think we thought a lot about how we could add wider opinion from children. The children's board was only 10 children. We need to engage the wider public."

Finally, most of the interviewees believe that it's vital to keep the board running ensuring the continuation of what has been a successful enterprise to date. Now lots of children have moved on to college or work or have reached the age of 19. The problem reported by interviewee F is that there is not enough motivation for children to join the board as the design stage is finished now.

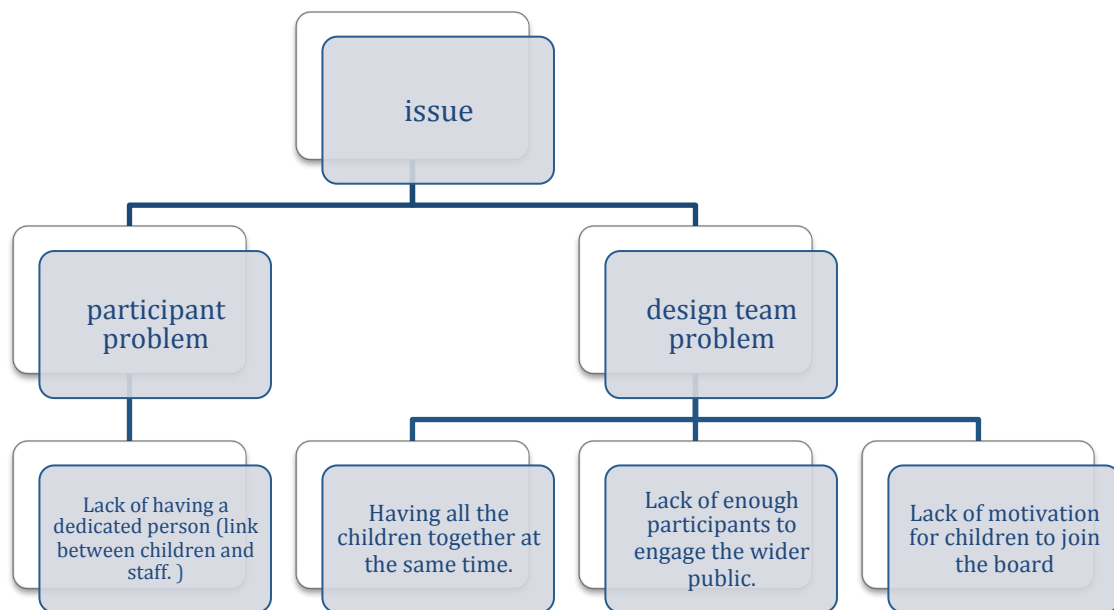


Figure 4.16 Issues of user involvement in Royal Alexandra Children's Hospital

4.7 Strategies adopted at Royal Alexandra Children's Hospital to avoid difficulties with children's involvement in design

Table 4.1 presents proposed solutions by the project team at the hospital for each issue identified in the literature review (described in section 2.11). One of the most successful solutions noticed by interviewees was the way of motivating children. Children and young people chaired meetings themselves whilst adults in the meetings were expected to respect the golden rules as agreed by the C&YPB including red and yellow cards that determine expected behaviour. It was an appropriate way to give a sense of respect and empowerment to children and young people and invite them to be involved in the process and look at it as a serious job. Overall, everyone was very excited by and supportive of the design. In the word of interviewees, the approach adopted by the hospital was very appropriate, sensitive and effective in a meaningful way.

In terms of the sustainability of the involvement process, flyers are advertised regularly in local papers by the Trust for children and young people to join the board from different ages and demographics to keep the board alive.

Providing and maintaining confidentiality during the process was explained by interviewee H as follows:

“As far as I am aware consent forms were obtained for each child, signed by parents/guardians to say they were happy for their photographs and names to be used in any publicity. I do not believe any reference was made to their individual problems.”

Table 4.1 solutions for each issue

Issues	Solution
Communication	<ul style="list-style-type: none"> • Staff present with experience of communicating with children • Using different methods (verbal and visual)
Confidentially	<ul style="list-style-type: none"> • Consent form • Not discussing medical condition and treatment
Motivation	<ul style="list-style-type: none"> • Each child or young person takes it in turn to chair a meeting • Adult in meeting expected to respect the golden rules as agreed by C&YPB • Have refreshment available
Mass confusion	<ul style="list-style-type: none"> • The creation of the Children’s Panel, which numbered no more than 10 children of different ages was a very good way of soliciting input
Sustainability	<ul style="list-style-type: none"> • Trying to keep the C&YPB alive
Time	<ul style="list-style-type: none"> • Four times a year and during out of school hours and during school holidays

With regard to communication, service users and non-service users met regularly to discuss their opinions with different verbal and visual methods on all sorts of subjects such as design of furniture, meals, decorations, colour schemes, curtains etc. The Chief Executive of the Trust also usually attended the meetings (Interviewee D).

In order to have as many members present as possible at every meeting, the meetings were often held at weekends and out of school hours and during holidays where food and refreshments were also supplied.

To prevent the mass confusion problem, limited numbers of children and young people were selected over a cross section of different age, family class and demographics to participate.

4.8 Recommendations

Recommendations on the key issues of children's involvement in the design process, which are suggested by design team, NHS staff and PFI members, are presented in table 4.2. Recommendations were based around the stage and level of involvement and the concept of C&YPB.

In summary, the main points evidenced were:

- engaging with children at the beginning of design of building (project identification stage) and interior design (Interviewee N)
- involving more children in the wider community (Interviewee E)
- the creation of the Children's Panel, which numbered no more than 10 children of different ages (all patients of the hospital) was a very good way of soliciting input (Interviewee O)
- having job description for each of the children during the period of an involvement (Interviewee Q). The 'job description' is a way of writing down all the things someone will be expected to do in their new job
- having a facilitator who is a key person that meets with them regularly who are involved with setting up the forums from the outset (Interviewee Q)
- have somebody who has all of the skills to be the link between children and staff (Interviewee Q)

- include children who have not been in the hospital as well as those who have (Interviewee E)

Most issues raised are that in some cases there is disagreement or different views through the direction of the process. For example designers believe that the C&YPB should be limited to 10 people but other people think that 10 children cannot represent the whole community and suggested that more children should be involved.

Table 4.2, Recommendations

Job role	Area of suggestion	Recommendation
Designer	Stage of involvement	“You could consult with children at the beginning of design process before you get the building shape. I think maybe more at the start and then maybe right at the start of interior design process might be a good way to do it but in middle section you couldn't involve children . It takes a lot of time.” (Interviewee N)
	Level of involvement	Most of the designers believe that the best level of involvement during the “project design” could be “consulted and informed” but in the stage of “project identification”, it could be a different level to elicit information (Interviewee M and N)
	Children’s and Young People’s Board	“The creation of the Children’s Panel, which numbered no more than 10 children of different ages (all patients of the hospital), was a very good way of soliciting input”. (Interviewee O)
NHS Staff	Stage of involvement	Most of the NHS team believe that due to technical issue, it is not possible to involve children in the design of buildings but they can be involved in interior design of building: “In my opinion the most important thing to learn is this is a building for children and therefore it has got to be fit for purpose. It has got to be a building which is safe to come for children in but in terms of the internal environment is important for children to feel happy, comfortable and so it’s vital and important to involve them in the process. There is no point in adults thinking about what children would like. You need to engage them and ask them.” (Interviewee C)
	Level of involvement	The NHS staff believe that it is important for children to see their impact during the process: “I think another thing is having a job description for each of them during the period of involvement so that they can see what expected of them.”(Interviewee Q)

		He also suggested that: “Probably having a facilitator who is a key person that meets with them regular rather than changing them, for example a head paediatric nurse and to make sure you have somebody who has all of the skills to always be that link.”
	Children’s and Young People’s Board	“Engaging with more children in the wider community is something that we can think about.” (Interviewee C and Q)
	Stage of involvement	“Engage children before putting a single piece of design on a piece of paper as if you going for the concept and got the money for new hospital get them as earliest possible and establish a C&YPB at the outset before you even start.” (Interviewee E)
PFI	Children’s and Young People’s Board	Include children who not been in the hospital as well as those who had. (Interviewee E)

4.9 Summary of key findings

The main purpose for the involvement of children and young people in this project was to gain insight into children’s perspective of desired hospital environment. From that, to endeavour to improve their health and clinical outcomes, reduce recovery times and provide a more positive experience during testing times by creating a child-friendly environment. The major innovation in this project was the Children and Young People’s board, which was involved in the development of the hospital and continues to play an important part in the functioning of the hospital.

The outcomes of the process were successful, mainly due to diverse methods and levels of involvement. As shown in Figure 4.17 the engagement in this project was based on four levels of Hart’s ladder and mostly on “consulted and informed” basis.

Some of the children’s suggestion and ideas are very identifiable in the final project and children can recognise their input. Moreover, some suggestion might be difficult or impossible to implement in the design, as the design of the hospital is very subtle, especially when the participants are children. So, the main engagement was in the project identification stage and their ideas fed into the design team brief and they weren’t involved directly in the actual design of the building. Later in the process,

they were involved directly in interior design of some specific areas, but their main involvement was as a consultant to choose between different options. One of most beneficial activities in the process was the involvement of the C&YPB in the murals on the walls or DVDs and brochure available for every inpatient. Table 4.3 shows the summary of design process of this project.

Table 4.3 the summary of design process

		Level of involvement	Methods	People who had been involved
Project identification		Consulted and informed	Questionnaire Modelling Workshops	Former and current patients, community representatives, clinical staff, design team, volunteers
Project design	Ambient environment	—	Information fed from previous step	Children board's members Clinical staff Design team Chief executive
	Architecture feature	—	Information fed from previous step	
	Interior design feature	Consulted and informed Child-initiated, shared decisions with adults Adult initiated, shared decisions with children	Board meeting Competition	
Implementation and evaluation		Consulted and informed	Board meeting	Children board's members, clinical staff, design team, chief executive
Celebrating and documenting lessons learned		Assigned but informed	DVD making	Children board members, Terrier TV (produce), representative of clinical staff and design team

The team didn't engage younger children to support the design of the hospital environment. The members of C&YPB were aged between 9 and 18; children under 9 were missed in this project. This was contrary to methods proposed by literature for

different needs of children with different age, which requires different methods to identify their perspectives. There is no evidence to show that the needs of younger children (under 9) were recognised during the design process.

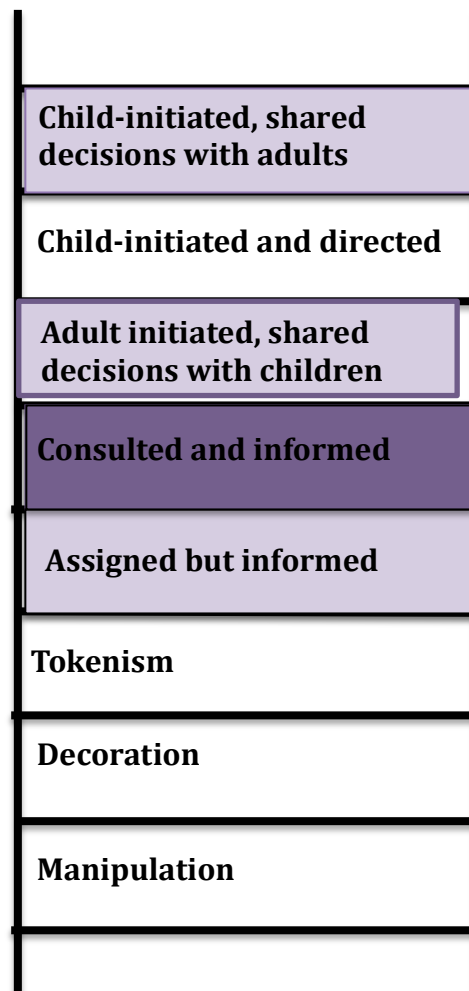


Figure 4.17 level of involvement in whole design process of Royal Alexandra Children's Hospital

4.10 Summary

This chapter presented the data collected and analysed for the first case study developed in this research. Level of involvement, problems encountered, possible solutions and benefits for each stage of the participatory process were described.

5. FINDINGS OF CASE STUDY B

5.1 Introduction

Previous chapter described the data collected and its analysis within the context of the research questions for the first case study developed as part of this research.

This chapter presents a description and analysis of the second case study. In this study, the researcher has developed nine semi-structured interviews. Data analysis has been done with the use of content analysis.

5.2 Case study B: Royal Manchester Children Hospital (RMCH)

5.2.1 Context of project

This section presents the overall background and context of the project, which is based on information presented on document A. Originally, the Manchester Royal Infirmary was established on the Oxford Road site, over 250 years ago. At the time it was considered an “out of town” location. In 1884 the Royal Eye Hospital was also moved to that location where it cooperated closely with the nearby medical school. Since 1908 when most of the city’s major voluntary hospitals relocated there, the campus has grown to accommodate Saint Mary’s Hospital for women as well as a range of mental health services, with additional smaller facilities and units which were added sporadically.

As it is shown in figure 5.1, four new hospitals (Adults Acute, Women and Infants, Eye and Children) under a single unifying roof have been created. Each hospital benefits from its own individual entrance, sky-lit reception, outpatient and ward facilities (Figure 5.2). Some additional facilities such as shared imaging, theatres and key diagnostic and treatment facilities help to increase hospital-wide efficiency. As a result of the scheme, a strong campus with a major new green space and public boulevard has been created.



Figure 5.1 Central Manchester University Hospitals (Document A)

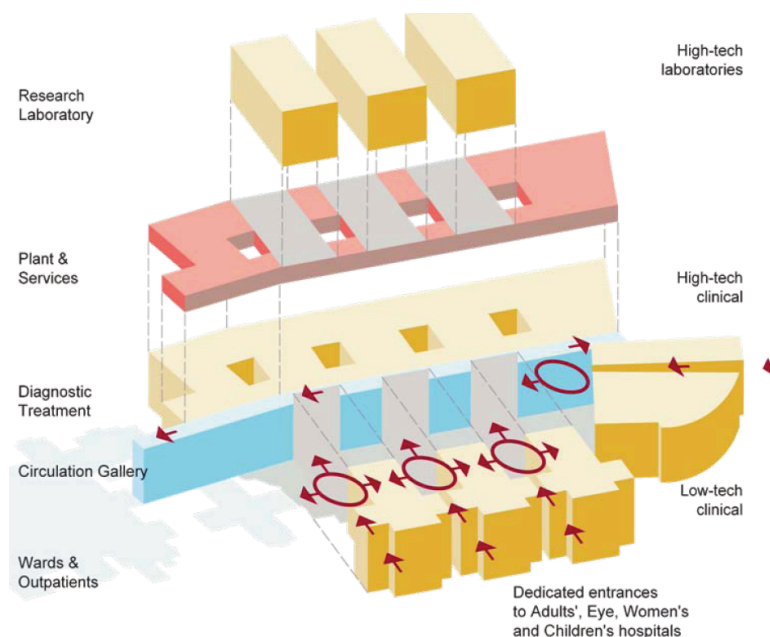


Figure 5.2 Central Manchester University Hospitals concept (Document A)

5.2.2 Project Description

The Royal Manchester Children's Hospital is the largest single-site children's hospital in the UK. In 2004, planning for the new hospital began. Construction was completed in April 2009 and it was opened in 11 June 2009.

Consisting of 371 beds, including 17 intensive care and 12 high-dependencies, it replaces two children's hospitals managed by the Trust in Manchester - Pendlebury and Booth Hall - and unites them in a single building.

Despite its size, RMCH has been designed to minimise the anxiety of patients and families crossing the hospital threshold for the first time and retain a sense of the human-scale (Document A). Vibrant colours, good signage and artworks have been used to welcome them into the hospital's "heart space" - a bright and airy atrium that comprises reception, public concourse, waiting areas and modern cafeteria. Plenty of natural light from the attractive and durable ETFE (Ethylene tetrafluoroethylene) roof has also been used to enhance the public areas (Document A).

The overall aims of the scheme can be summarised in the following points:

- To encapsulate both old buildings into one major university hospital, which can create a new leading edge paediatric centre with the best diagnostic and clinical research support (Document A).
- To maintain this medical centre on the site while accommodating clinical services which are relocated from other sites (Document A).
- To replace the previous buildings which were unsuitable for housing the new state-of-the-art medical facilities (Document A).
- To provide the local community with a public building in which they can feel a sense of civic pride while maintaining a memorable sense of place for patients, visitors and staff (the architecture company website).

As the architecture company highlights the importance of the project: "We pride ourselves in having created a mechanism for interweaving the highly specialist aspects of medical planning with the broader aspects of architectural design. Our award winning designs are rooted in strong building and operational diagrams which are rational and clear to use. They are functional but they also respond to very human needs, built on a scale to welcome and reassure."

5.2.3 Design Process of the Royal Manchester Children's Hospital (RMCH)

The redevelopment of Central Manchester University Hospitals cost about £500m, which made it one of the biggest healthcare projects in the UK. The PFI scheme delivered four new state-of-the-art hospitals including adult, eye, women and children on the Manchester Royal Infirmary site in August 2009, forming an integrated hospital campus designed to provide modern healthcare services.

The development of this scale of new facilities on the site of a functioning hospital creates enormous logistical and construction difficulties which require a complex series of phases involving service decanting, de-commissioning and demolitions to be planned to unfold the new buildings on the site of former facilities and alongside continuing services.

5.2.4 Design Process Timeline

Figure 5.3 is developed to describe a generic overview of the process main stage as well as provide an overview of the children and young people's involvement over time, which is described on next session.

In May 2000, the Outline Business Case was approved and in July 2001 Private Finance procurement initiated the process with advertising in the Official Journal of the European Community (OJEC). Following the acquisition in July 2000, initial bidders were identified in September 2000 and by January 2001 three bidders were identified for the project. Since then the Trust has been working with them to ensure of submission of three solid and competitive bids by the end of November (Document Q). The preferred bidder was identified in April 2002 and the construction process commenced on July 2004. The project was completed in April 2009 and opened on 11 June 2009.

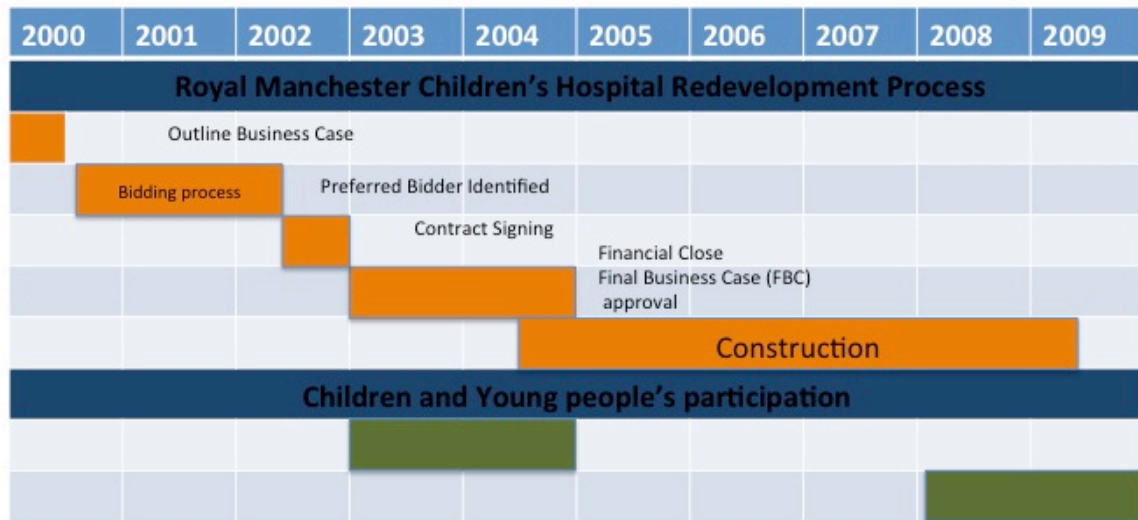


Figure 5.3 Design process timeline

5.2.5 Participation process of the Royal Manchester Children's Hospital (RMCH)

The following sections describe the participation process during the design as discussed by the interviewees and documents in the second case study. It discusses why involvement was needed, who has been involved, how involvement was conducted and the main problems that the case study faced during the design process. The level of children and young peoples' involvement in this case study is discussed in terms of five stages of participatory process cycle as it is presented in the literature review (see section 2.11): Project identification, Project design, Implementation and evaluation, Celebrating and documenting lessons learned.

5.2.6 General representation of the participation process

The participation of children in the project cycle was not a continuous process. It occurred twice; in project identification (where it was eventually fed into design brief) and just after the completion of the primary structure until the end of the project (Figure 5.3).

To facilitate the participation of the children, Therapeutic and Specialised Play

Services helped to arrange gathering children and young peoples views. This included all ages, inclusive of equality and diversity via drawing and writing techniques using disposable cameras and photographs.

Interviewee (E) discusses further about the techniques used to obtain children's views:

"I like, I don't like and would like, participation sessions, Post boxes, wish trees, fun day consultation, participation days, Q and A panels, uses of technology and focus groups, 1:1 and creative sessions and competitions where necessary in a non threatening fun environment with certificates and awards presented to help motivate".

Table 4.1 demonstrates the number of projects in which the children and young people were involved with the duration of them as well as specific methods adopted to engage them through the process.

The findings were collected, reported and presented to the project team and displayed in waiting room, clinics etc. to highlight what service users have said they wanted and the action plans to be undertaken and also different design ideas and so on. Designs were submitted to the Trust youth forum (Teen Talk) where required. Depending on the age of participant, different methods were employed to capture participants' perspectives. For young people age 12 and above there was a youth forum, featuring a mixture of patients in the previous hospital with those who are interested in health services.

Moreover, other groups of children and young people were involved in each area of the project such as: local school, people from out patient department or wards (all ages). As it can be seen from table 5.1 young people were involved through different methods such as group discussion and questionnaire. In certain projects which children were involved in, visual methods were employed to involve the participant.

Table 5.1 projects which the children and young people were involved

Project	Date	Duration	Target Group	Methods	Feedback
Youth Engagement Strategy	Feb 2008	1 month	Teen Talk	Group discussion	Strategy completed and reviewed by teen talk
Trust Web Page	Feb 2008	1 month	Teen Talk	Group discussion	Web page developed and reviewed by both groups.
Teen Talk Review	Feb 2008	4 months	Teen Talk	Group discussion, review information	Final report to go to teen talk and Senior management team
Curtain Consultation	March 2008	4 months	Teen Talk, out patient department, wards (all ages)	Pictures, questionnaire, workshop	Final design chosen by Senior management team
Catering Consultation	March 2008	2 months	Teen Talk, patients/ carers on wards and canteen	Group discussion, questionnaire	Menu's presented to teen talk, new menu's in place
Children's Rights Consultation	April 2008	1 month	Teen Talk, out patient department	Questionnaire, group discussion	Final report fed back to teen talk, recommendations to Senior management team
Foundation Trust Youth Structure	May 2008	1 month	Teen Talk	Group discussion	Structure fed back to teen talk.
PPI youth Training	May 2008	1 day	Manchester Academy Yr8	Formal Training session	Evaluations taken to improve. Certificates given.
Clinical Trials Day	May 2008	1 day	All on main corridor	Information stall	Information provided
Evaluating Self Care - Research	June 2008	1 day	Teen Talk	Group discussion	Researcher to come back to Teen Talk to feed back
Foundation Trust Gov Selection	June 2008	1 day	Teen Talk	Event	2 gov's elected, forum plans launched.
Adolescent area PFI	June 2008	2 months	Out patient department, ward areas.	Questionnaire	
Ward 14 internet consultation	July 2008	1 month	Ward 14, out patient department	Questionnaire	
Information prior to coming to hospital	July 2008	1 month	Out patient department	Questionnaire	

5.3 Project Identification

In the first stage of the project cycle, project identification of RMCH different methods were used to consider children's views and preferences.



Figure 5.4 children's drawings best hospital in the world-Rainbow Hospital (Document J)

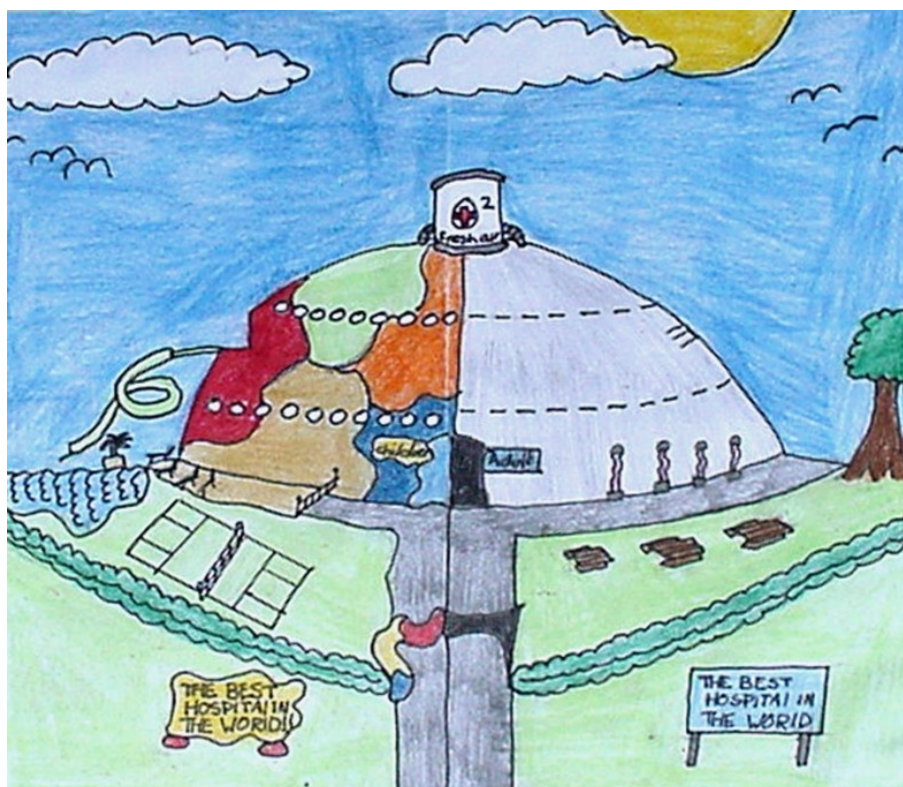


Figure 5.5 children's drawings best hospital in the world (Document J)

The art organisation within the hospital contacted some local schools and asked the teachers to work with children to produce some drawings and text to demonstrate and visualise “What would be the best hospital in the word and the kids came up with some map things, the outcome of writing and drawing”, explains the director of the art organization within the hospital. Figure 5.4 and Figure 5.5 illustrate some of the childrens' drawings.

“They made a display exhibition of all their works, and the idea was this might influence the architect or create at least a little spark in their thinking.” (Interviewee H)

As Interviewee H highlights: “There was something there that was the voice of the children saying how they would like the hospital to be which is an ambitious task ... looking at rainbow hospital (Figure 5.4), it is pretty obvious that children like colour in hospital, we introduce that in terms of pillars; the main pillars of the children entrance that’s become quite iconic to the whole building (Figure 5.6)”. Some of their drawings are still in frame in the hospital corridor.



Figure 5.6 the main pillars of children entrance

In order to obtain children and young peoples' feedback and viewpoints, there were

suggestion boxes on all the wards in the previous hospital and displayed pictures of new wards.

Children and young people work as consultants for adults. As it was inspired by the children's idea of "the best hospital in the world", the project was designed and ran by a team, but children and young people understood the process and their opinions were treated seriously. The director of the art organisation within the hospital trust was responsible for involving children in the early stages prior to the design of the building. The level of involvement at this stage of the project cycle, based on Hart (1992), can be classified as "consulted and informed" (Figure 5.7).

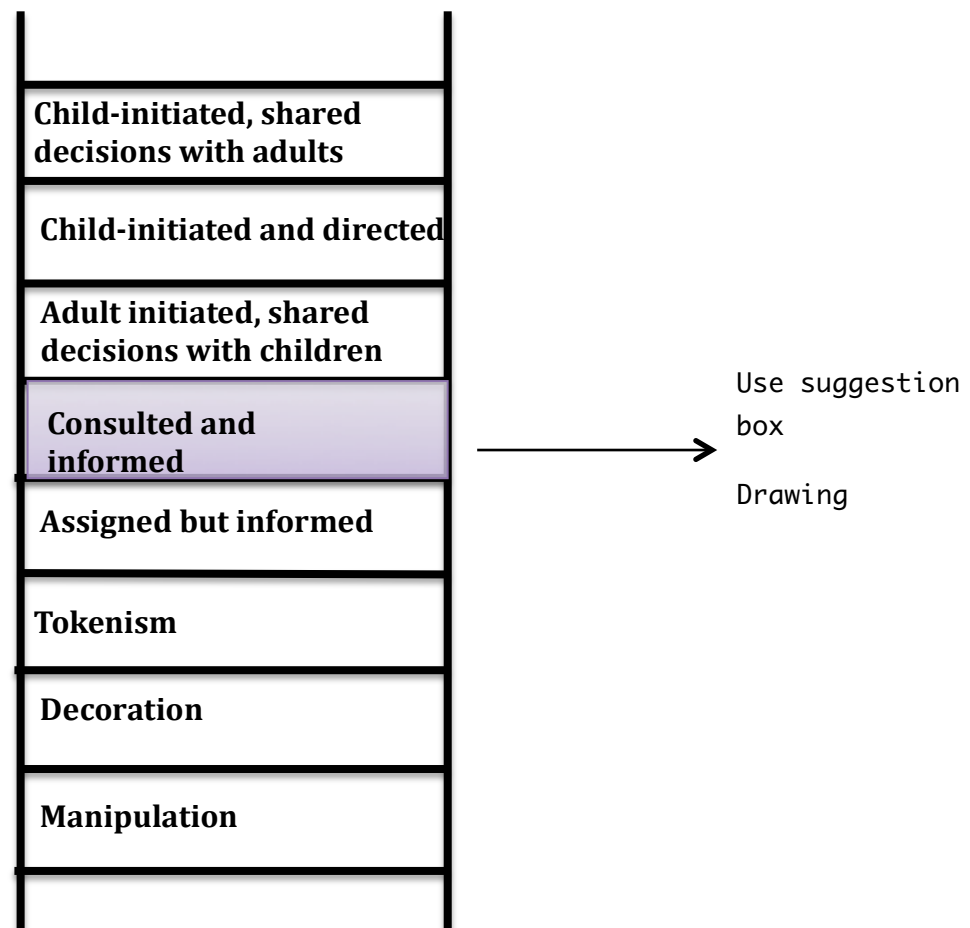


Figure 5.7 level of involvement in Project Identification stage (Royal Manchester Children Hospital)

5.4 Project Design

In RMCH, project design was done with different levels of involvement and methods to consider children's' views and preferences (Figure 5.8).

In RMCH, the PPI (Public and Patient Involvement) group led the engagement process. They “asked the same question with different methods to get the best response” (interviewee E). Depending on their age, for example if they were less than 12, different methods would be undertaken such as: taking a picture, story book and giving them disposal cameras and asking them to photograph what they like and what they don’t like. For people age 12 and above they have youth forum. It was mixture of patient (in patient and out patient) and youth forum (have been patient in previous hospital with those are just young people who are interested in health services) and local school who were involved in the design process. Often they used outpatient to question because they were better and more willing to chat and cooperate.

Design of the seating area in the hospital’s atrium was one of the children’s involvements in the design process. Initially the atrium for the children’s hospital was empty and it didn’t look very welcoming to the public people. Young people were asked to design the seating area and hence there were a number of meetings of the board with the PFI team. Consequently young people influenced the design of the seating in the children atrium. So, the level of involvement at this stage was “Consult and Informed”. The project is designed and run by adults, but children understand the process and their opinions are treated seriously. An improved design discussed with the participating youth. Therefore, the level of involvement in this part of project based on Hart 1992 can be called “Consult but Informed”.

Another level of involvement at this stage was “Child-initiated, shared decisions with adults” which can also be seen in designing the curtain going around the bed and the courtyard design. The design of curtains was also performed by contribution of children and young patients. After the initial meeting with the team, an artist talked to play specialist and children and explained the process to them and made them welcome to give their own views. There were four-five meetings and a workshop day to design the curtain around the beds.

Patient Advice and Liaison Service (PALS) members were working with a group of children and consulting about the nature of the curtains. So, the level of involvement at this part of project can be classified as “Child-initiated, shared decisions with adults”. This happens when children and young people initiate projects and decision-making is shared between users and adults. Children and young people initiated

design of curtain through that competition and decision-making was shared with adults.

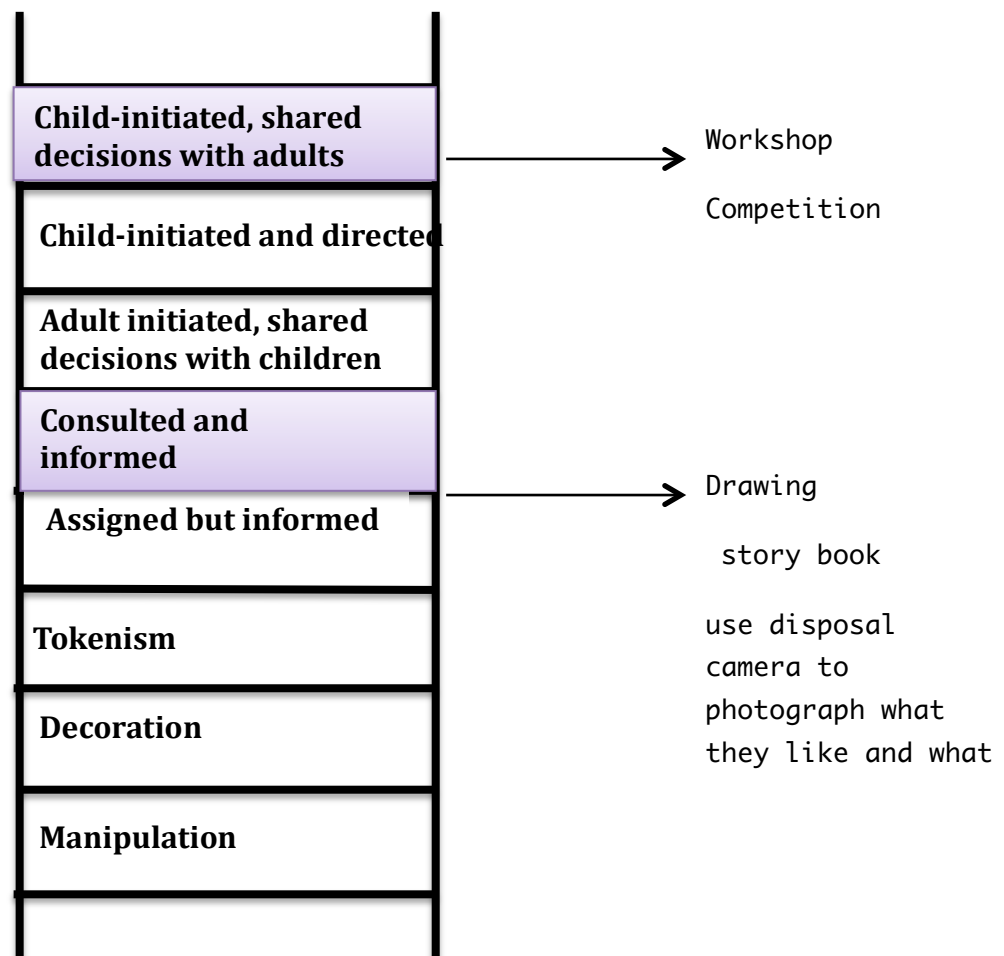


Figure 5.8 level of involvement in Project design stage (Royal Manchester Children Hospital)

Subsequently the project team actually work with the group of young people who were doing the workshop at the hospital. They had a one-day workshop with the designer on board. The artist showed them some of the curtain designs and they then had a short discussion about how they would proceed within the workshop and set some drawings.

The workshop started with a power point presentation about curtain fabric design. Everyone involved, including the designer started by drawing ideas that interested or inspired him. The designer scanned all the drawings, organised them and using her own mind mapping, enabled the children's drawings to be part of the process of fabric

design, so the textiles were like hand drawn fabrics. They showed the design to a range of children to ask them their thought about the design without telling them which one has been chosen.

Children were involved in one of the courtyard designs through a competition that was held at the local school - Manchester Academy (Document P). They all had their own design drawn and the best design was chosen between them. The design went forward and was placed in part of one of the courtyards. Hence, they were involved in exterior design as well as interior.

Children and young people initiated design of the courtyard and curtain and decision-making was then shared with adults

5.5 Implementation and Evaluation

This stage of the project lifecycle played an essential role in order to assess its long-term impact and sustainability. At this stage the involvement of children and young people was through youth forum and its level was “Consulted and informed” (Figure 5.9).

Every couple of months they walked around the ward and talked to children and young people and obtained their feedback and forwarded them to the management team. The PPI team undertook the analysis and fed the outcome back to the Youth forum to get comments and feedback through questionnaires (see Appendix I) or group discussion (interviewee E). Young people work as consultants for adults, in a manner, which has great integrity (Hart, 1992). A Proposed solution was shared with the participating youth. Young people were informed about how their input will be used and the outcomes of the decisions made by adults.

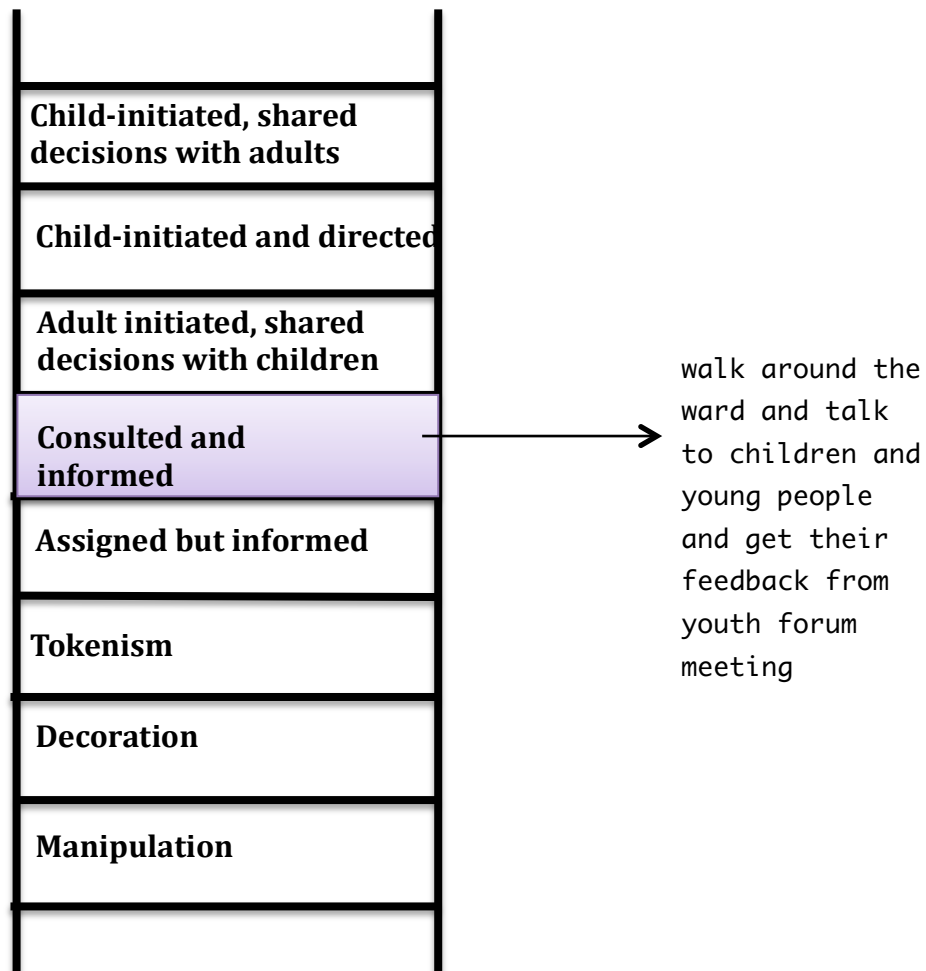


Figure 5.9 level of involvement in Implementation and Evaluation stage (Royal Manchester Children Hospital)

5.6 Lesson learned

In the largest children's hospital in the U.K, the Royal Manchester Children's Hospital, the lessons learned were documented in two ways, by adults alone as well as jointly by children and adults- as it was the case in the first case study. A 12 part TV series produced by Maverick Television for ITV1 shines a light on the bravery of the hospital's young patients. The involvement of children at this stage happened through being filmed and interviewed in hospital and it can be allocated as "Assigned but informed" (figure 5.10).

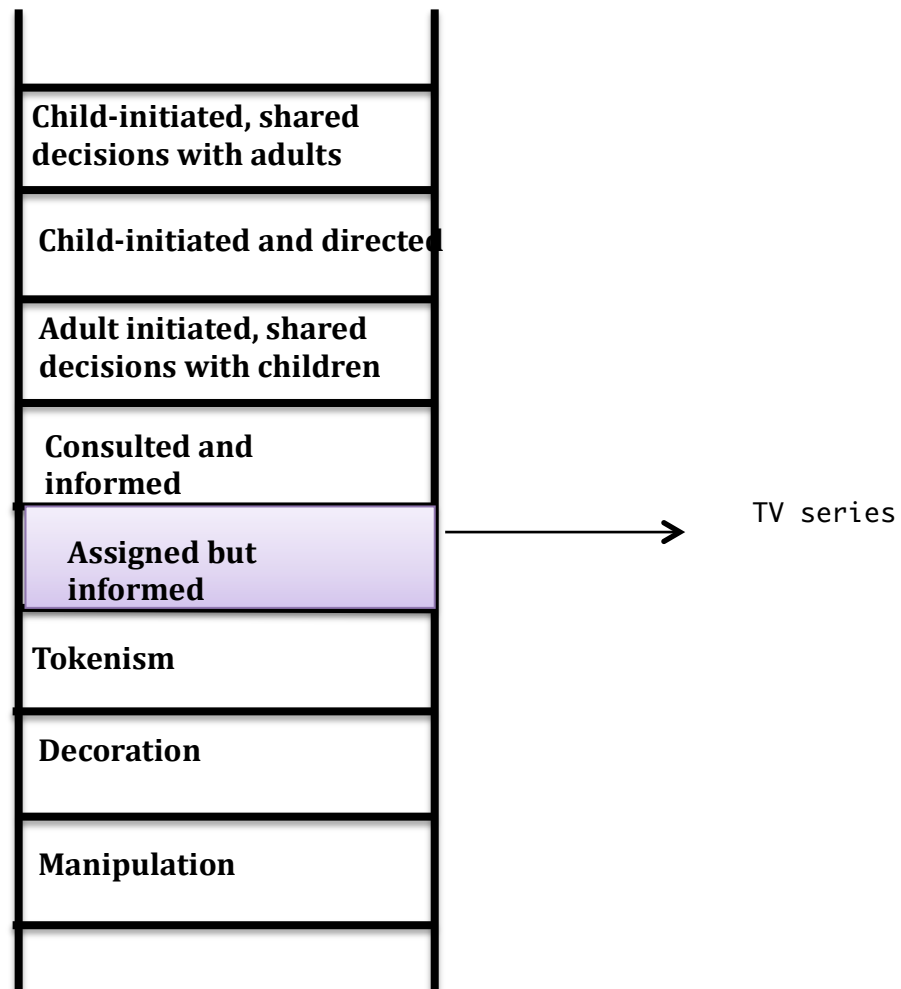


Figure 5.10 level of involvement in lesson learned stage (Royal Manchester Children Hospital)

5.7 Benefits of user involvement in the design process

The benefits identified in the RMCH (Figure 5.13) are similar to the espoused benefits described in the literature (presented in section 2.7). Benefits were expected for the project and users, according to interviews and document A:

- To see everything from a child's perspective, as there is no point that adults think/decide about what the children's needs/preferences.

The project manager mentioned in interview G that her little girl talked about the sculpture of a fish in the hospital, saying that the fish would be dead because it's not in the water.

- Connecting to the local community,

The project also provided opportunities for the design team and staff to connect and work with the wider community. They got a real view of people who are going to use it and most importantly it's connect of the institution with client. (Interviewee H)

- Involving in the decision-making and feeling of ownership to empower participants

The empowerment of service users is an essential part of our belief that people must not be excluded from society. Users will have the most (if not all) control of different aspects of the their entities (i.e. environment). Empowerment of users is one of the main agendas behind user participation (presented in section 2.7), in this case the children and young peoples.

Students at Sale Grammar School made 23 3-dimensional explorer characters in box frames (Figure 5.11), which were exhibited throughout the department. The story of each explorer is engraved on brass effect plaques, such as the Captain Barbarossa character Del Mort, who is travelling from the Bermuda Triangle to Tortuga (Document H). Using these frames in the hospital can provide a sense of ownership to empower children's and young people.



Figure 5.11 3-dimensional explorer characters in box frames (Document H)

- High quality services for families and children through effective engagement with users

The design of curtains around the bed could be an example of quality enhancement in a hospital environment.

The design of curtains around the bed need to be suitable for all ages and a curtain should be printed both sides because patients look at the interior (see figure 5.12). Interviewee H expresses the importance of design: “...outside is important for the appearance of the ward and inside for the view of the patient”. Also, play specialist have expressed that when they’re carrying out treatments they can use the curtain drawing to allow for the pain of the patient to be moderated which was an interesting link between design and use of the curtain for treatment.



Figure 5.12 curtain around the bed designed by children (document H)

Following is one of the comments about the hospital environment expressed by children (document A):

“The new place (Royal Manchester Children’s Hospital) is really modern and more comfortable than Pendlebury was. I have been coming to the hospital for over 5 years now and the oncology out-patients is so much better than it was.

The consulting rooms are much bigger and brighter.”(Annual report 2009-2010)

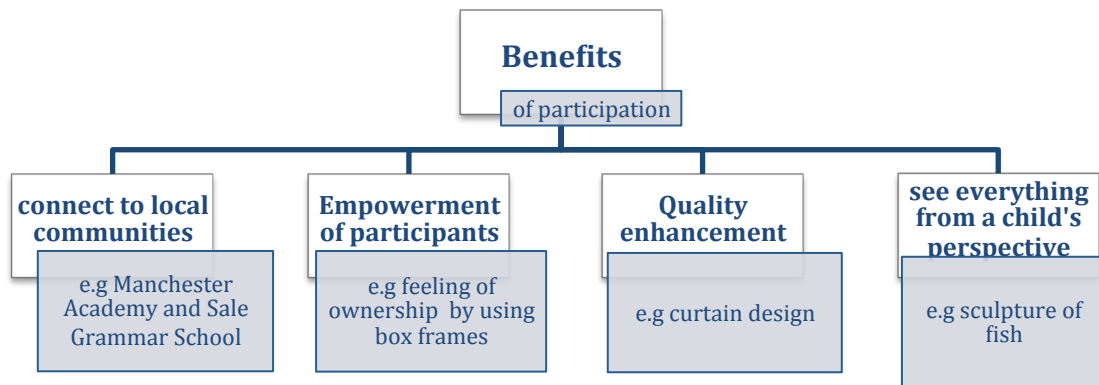


Figure 5.13 Benefits of user involvement in Royal Manchester Children Hospital

5.8 Problems in the participation process

The children’s participation in this project corresponds to three of the five types of participation depicted on the top five rungs of the Ladder. Despite all the success of the project, there was still need for improvement to the design process based on information gathered from the interviews and documents. Figure 5.14 demonstrates the issues of user involvement in the Royal Manchester Children’s Hospital.

One of the main issues mentioned by most of the interviewees, was having all the children together at the same time. “While we were doing this project in the ward, there always have been an issue of not being well. They work with children, maybe 5 children, but 3 of them were not well enough. It’s difficult, often children in the hospital, as soon as they well enough they’re sent home. So, that can be tricky.”(Interviewee H)

Furthermore, different groups of children and young people were involved in the design process but lack of a control group- who is involved in all the stages of process and sees how different inputs are used in the process, was quite evident in the process (interviewee C).

Moreover, there was a lack of a young people’s representative in order to be able to

see specific needs of children as it was mentioned by a couple of interviewees and also a lack of an architectural team representative in the children's board meetings.

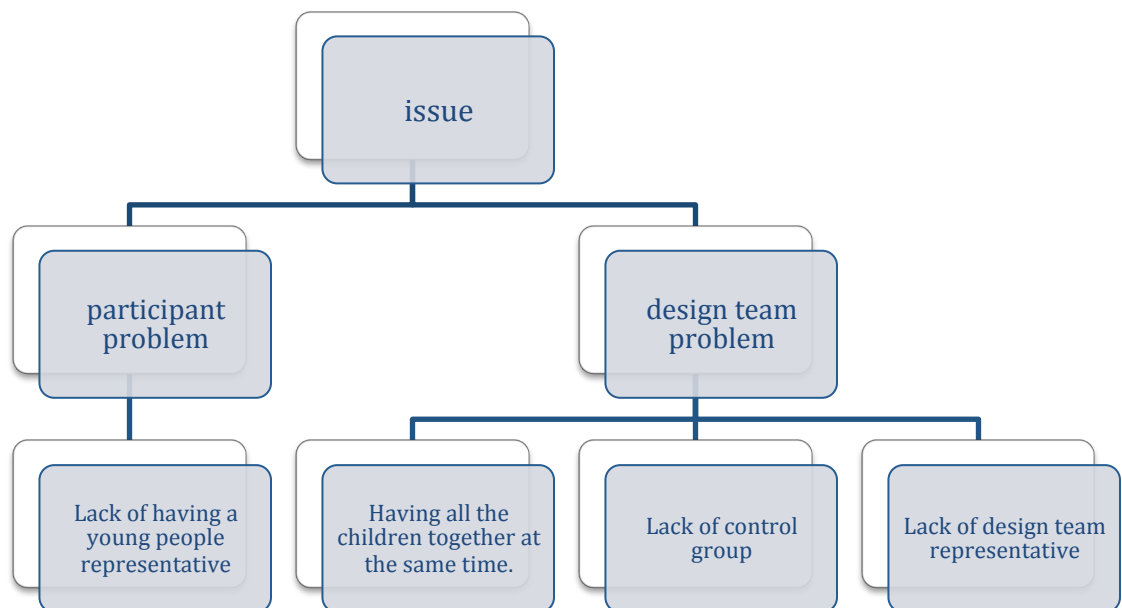


Figure 5.14 Issues of user involvement in Royal Manchester Children Hospital

5.9 Strategies adopted at Royal Manchester Children's Hospital to avoid difficulties with children's involvement in design

In terms of a solution to the issues identified in the literature review (described in section 2.11), the table 4.5 presents possible solutions for each issue, as identified through the case study. With respect to communication issues, one of the most successful solutions noticed by interviewees was the use of different methods, which helps creative communications to be established. "Therapeutic and Specialised Play Services helped arrange gathering children and young peoples' views at times, including all ages inclusive of equality and diversity via drawing and writing techniques using disposable cameras and photographs as well as other techniques such as 'I like/I don't like' and 'would like' and participation sessions" was explained by interviewee E. Moreover interviewee D explains that: "Everything we do, we look at how creative we can be and hopefully lots of drawing, lots of story telling, lots of creative media because they like that". Another possible issue was the motivation of

the involvement of children and young people. Interviewee D expresses her views as follows: “We worked with the Hospital’s Youth Forum Group. This is a group of patients interested and involved in the hospital, advising the Trust on a range of issues. Consequently they were already motivated but additionally we tried to make the sessions fun and engaging”. Confidentiality is another main possible issue or obstacle in the project. As interviewee B explained, the adopted solution for the issue was a full explanation about the new hospital – use of picture and consent to be involved via parents or school. Consent should be obtained in order to use the participant’s photograph or name but if it was an anonymous consultation, verbal agreement would be adequate to proceed (Interviewee D). In order to sustain children and young peoples participation during the life cycle of the project, the youth forum is kept alive and maintained, even when the members had to leave the forum when they get older (interviewee D). Furthermore, as interviewee D explains: “As part of the PPI team, the role ... was influencing the new development hospital board for the patient involvement and looking for a way to make sure that we were involving young people, children and carers”. In order to solve the mass confusion issue, a limited number of children for each project were involved.

Table 5.2 proposed solutions for each issue

Issues	Solution
Communication	<ul style="list-style-type: none"> • They had number of staff that were well trained before hand and knew how to treat children. • Use of different method (verbal and visual)
Confidentially	<ul style="list-style-type: none"> • Consent form if their photograph or name is used • Verbal agreement if it was anonymous consultation • Not discussing medical condition and treatment • Discuss their view if they feel they want to share • Tell them when their information is going to be used.
Motivation	<ul style="list-style-type: none"> • Creative communication
Mass confusion	<ul style="list-style-type: none"> • Use limited children for each project
Sustainability	<ul style="list-style-type: none"> • Trying to keep the Youth forum alive. • The PPI group,
Time	<ul style="list-style-type: none"> • Use patient in hospital • Local school children in school time

5.10 Recommendations

Recommendations on the key issues of children's involvement in the design process, which are suggested and outlined throughout the interview sessions and collected data from the project design team, NHS staff and PFI members, are presented in table 5.3. Each interviewee has outlined their personal ideas and experiences during the process of children and young peoples' involvement and highlighted important feedback from the outcomes of the process. These would contribute to a collection of recommendations, which are based on true and experimental feedback. Recommendations were based around this stage and level of involvement and the concept of the Youth Forum.

In summary, the main recommendations postulated and proposed by interviewees are as follows:

- It would be more convenient that one group would be involved and start with them and they can be seen all the way through. While engaging a lot with others, it would be easier to have a control group in place. (Interviewee F)

- Start and engage with them at the earliest stage possible in order to (Interviewee B and G):

- a) get more viewpoints

- b) have more time to process the participation activities

- Having a youth forum representative to help them to feel stronger and more encouraged (Interviewee E)

- Include younger children and pay attention to their viewpoints and preferences (Interviewee E)

- A much more structured consultation process and perhaps a lengthy planning process to connect with schools, family and people who use the hospital. (Interviewee H)

- Having a much more joint dimension process; a truly clear linked approach between the children and the nurses engaging, through developing workshops or the consultation process (Interviewee I)
- Everyone should be aware that consultation process is taking place and the information gathered needs to be communicated and taken forward by designers and managing and developing a team of the built environment. (Interviewee I)
- Being prepared; in order to gain as much information as possible and an ample amount of time should be spent talking to patients, relations and clinical users about what they want and looking to the future and making sure this service delivery model is correct and maintained for the future. (Interviewee A)

Table 5.3, Recommendations

Job role	Area of suggestion	Recommendation
Designer	Stage of involvement	A much more structured consultation process (Interviewee H)
		Having a much more joint dimension process (Interviewee I)
	Level of involvement	Being aware that consultation process is taking place and the information gathered needs to be communicated (Interviewee I)
	Participant (children)	It's much easier only one team involved (Interviewee F)
NHS Staff	Stage of involvement	Start and engage with them at earliest stage possible in order to (Interviewee B, A): a) To Get more viewpoints b) To have more time to process the participation activities
	Level of involvement	Include younger children and pay attention to their viewpoints and preferences (Interviewee E) Being prepared; in order to gain as much information as possible and ample amount of time should be spent talking to patients, relations and clinical users and maintained for the future. (Interviewee A)
	Participant (children)	Having a control group (Interviewee C). Having youth forum representative (Interviewee E)
	Stage of involvement	Start and engage with them at earliest stage possible in order to (Interviewee B, A): a) To Get more viewpoints b) To have more time to process the participation activities
	Level of involvement	Being prepared; in order to gain as much information as possible and ample amount of time should be spent talking to patients, relations and clinical users and maintained for the future. (Interviewee A)

5.11 Summary of key findings

Section 242 of the NHS Act 2006 has increased the statutory duty for Trusts to have to involve patients and the public. The PPI team has been expanded throughout the Trust. The Department has involved patients and the public and built strong relationships with local schools and involved them in projects. Table 5.4 describes the summary of the participation process in this project. One example is the design of a courtyard area with Manchester Academy. The winning design is being created for the New Hospitals Development. Since then, they have endeavoured to improve their health and clinical outcomes, reduce recovery times and provide a more positive experience during testing times by creating a child-friendly environment.

Based on feedback and comments gained from the interviewees, the outcomes of the participation process were successful mainly due to divergent methods and levels of involvement. As it's shown in Figure 5.15 the engagement in this project was based on three levels of the Hart's ladder and mostly on a "consulted and informed" basis.

Some of the children's suggestions and ideas are very identifiable in the final project and children can recognise their input. They were trying to address the issues, which some children may say they like or don't like, but the problem is that it is hard to please everybody. Some suggestion might be difficult or impossible to implement in the design, as the design of the hospital is very subtle, especially when the users are children. Therefore, similarly to the first case study, the main engagement was on the project identification stage and their ideas fed into the architectural team brief and they weren't involved directly in the actual design of the building. Later on they were involved directly in the interior design of some specific areas.

Table 5.4 the summary of participation process

		Level of involvement	Methods	People who had been involved
Project identification		Consulted and informed	Use suggestion box Drawing workshops	The director of art organization Local schools and the teachers Current patients of old hospital Hospital staff
Project design	Ambient environment	—	Information fed from previous step	Youth forum Local school Clinical staff Design team PPI
	Architecture feature	—	Information fed from previous step	
	Interior design feature	Consulted and informed Child-initiated, shared decisions with adults	Workshop Competition Drawing story book use disposal camera to photograph what they like and what they didn't like chat	
Implementation and evaluation		Consulted and informed	walk around the ward and talk to children and young people and get their feedback	Clinical staff, Management team Youth forum
Celebrating and documenting lessons learned		Assigned but informed	TV series	Patients, family, clinical staff and Maverick Television for ITV1

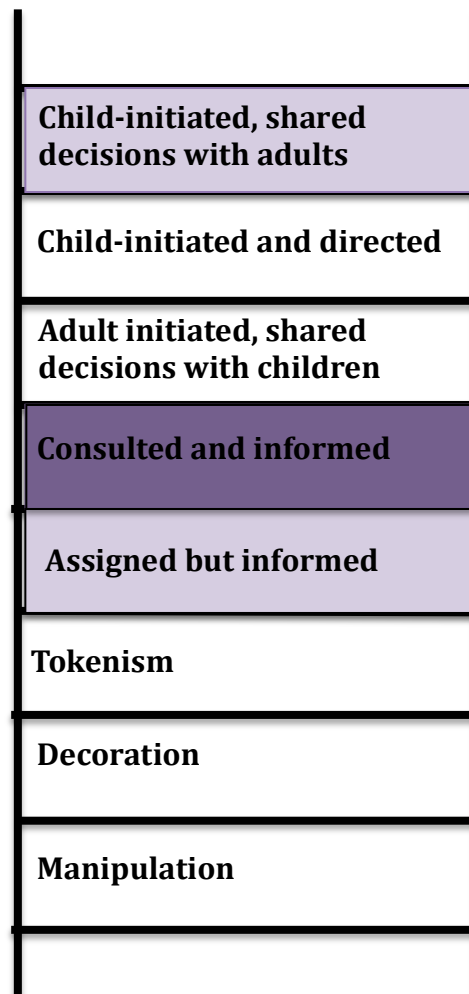


Figure 5.15, level of involvement in whole design process of Royal Manchester Children's Hospital

5.12 Summary

This chapter presented the data collected and analysed in the second case study developed in this research for the Royal Manchester Children Hospital (RMCH). The level of involvement, problems encountered, the solutions adopted and benefits of each stage of the participatory process were described.

6. CROSS CASE ANALYSIS

6.1 Introduction

This part presents the cross case analysis, discussing the research questions according to the analysis presented in chapters 4 and 5. Therefore, issues relating to the children's involvement, process, and outcomes are discussed.

6.2 Participatory design with children

This study has dealt with the involvement of children in the design of children's hospital environments. The study focused specifically on the design processes of two dedicated, purpose built children's hospitals. This section devotes to discussion of the first objective of this research:

To understand the role of participatory design with children in children's hospital design.

The studies highlight the evidence that children and young people can observe and assess more abstract aspects of healthcare rather than looking only at the more concrete elements such as décor and food. The literature certainly tends to point to a huge potential in relation to views on the quality of healthcare design from children and young people.

As it has been gained from all interviewees of both case studies; in order to improve the quality of care it is necessary to gain direct access to the voices of young people rather than relying on proxy reporting of their views. Creating environments according to children and young people's needs requires participation by children and young people as a routine part of the design and/or research.

Participatory design with children and young people provides access to the experience of hospitalisation from its user's point of view and removes the need for layers of assumptions by adults about children's experience. In healthcare design, adults' interpretation of what constitutes a supportive environment for children and young people are not what should be accepted and implemented.

To elaborate, two examples from the cases studied in this research have been chosen:

In Case A: There was a piece of art in the hospital which adults were not happy with, but surprisingly it was found that children spend lots of time during the day around it and had some form of connection with it. **In Case B:** As the project manager mentioned in interview G, her little girl talked about the sculpture of a fish in the hospital, stating that the fish would be dead because it's not in the water. "I think she was right and that is something a really good sculptor must be thinking of" an interviewee said. In both examples the adults' thoughts and expectations were in contrary with what the children and young people have perceived.

Therefore, in order to target the healthcare environments and services that can meet children and young people's needs, their perspective should be treated seriously and continuously.

Following are the motivations of each case study to involve children and young people during the design process and after opening the hospital

- to develop designs which delight and satisfy patients and which also link in with healing process (Case A and Case B).
- helps to achieve the Public Health Directive 'Five Ways to Well-Being': connect, be active, take notice, learn and give (Case B).
- to engage with the wide age range of children and young people who access the healthcare services (Case A and Case B).
- To impact children's feelings and make them more motivated for their treatment sessions.
- To distract or relax patients as required (Case A and Case B).
- focused their attention on issues that they could influence design elements, for example colour schemes, the design of privacy curtains in the ward, the range of the menu, etc (Case A and Case B).
- To make a real difference to the way paediatric services in the new hospital will be delivered (Case A and Case B).
- Ensuring the continuation of what has been a successful enterprise to date (Case A).

The next section compares the process of participatory design in both case studies.

6.3 Participatory design Process

The following section discusses the results of the study from the point of view of the process of user involvement. The themes addressed below include the structure of the process and the methods used in the projects (research objective 2):

To study the process and methods of identifying children's preferences and establish how the preferences were considered during the design process of the case studies

On a general level, this study shows analysis based on the cyclical nature of the whole participatory design process, which has been described in the literature review. (See sections 2.11).

Both children's' interviewees acknowledged that the ultimate aim of the process was to generate value to users and that users were involved in the processes. In both projects the participatory process was not continuously carried out during the design process. As it can be seen from figure 6.1, there was a gap in involvement of children and young people in both cases during the project design stage. In both cases main suggestions related to the architectural design from children perspective was found in previous step (project identification) and forwarded to the design team as brief. Project teams of both cases believed that it was essential to involve children as main users of building but designers perceptions of where most benefits could be achieved was to involve children prior to the design and after that in interior design stage. As it was noted by interviewee R that there are only limited spaces in design, which can be effected by participants. Moreover, an architect in Case A has highlighted that participatory work with children should be focused on issues that they could influence. There are also other factors which hinder involving children and young people in the whole process of the design stage such as: technical and clinical issues which need to be taken on board to meet standard hospital design.

To sum up, children and young people can be involved in different stages of design process where they can make the most influence. However this involvement should

lead to developing designs that delight and satisfy patient's needs and in the same time also link in with healing aims and promote hospital design criteria.

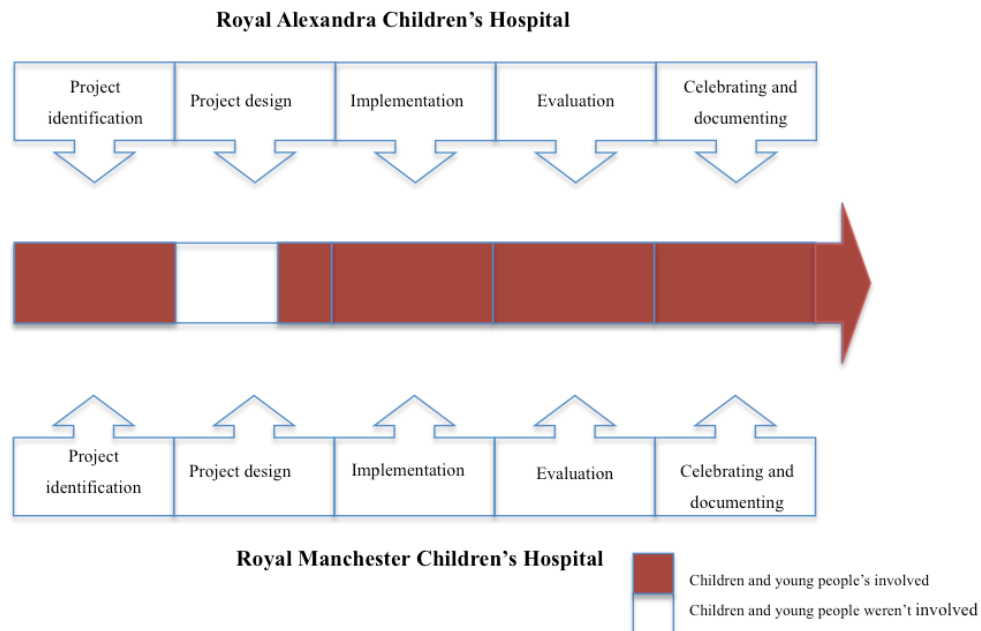


Figure 6.1 involvement of children and young people during the design process

At the project identification stage, the level of involvement in both projects was classified as “consulted and informed”. Children and young people in both cases were involved through different methods, both verbal and visual. Children not in hospital (e.g. Local school pupils) were also involved in the process. In both cases at this stage, they tried to find out the character of the ideal hospital from their views and feedback comments.

All information captured was forwarded to the architectural designers to inform the design brief. The following are common techniques, which have been applied in both cases:

- a) Children from inside the hospital as well as out of hospital were involved.
- b) Using different methods (suitable for the childrens ages) to elicit as much information as possible

c) Involved play specialists, teachers, art companies and hospital staff to work with children

d) Involved not only a wide range of children of different ages and gender but also children from different social class were involved in the process.

As it can be seen from table 6.1, the level of involvement in both cases was similar in all stages except the project design stage but the methods employed were different (table 6.2). Nonetheless, each project had slightly different explanations for its structure, which was directly related to the principal motivations and its aims. In Case A, focus was given to make a sample group from all ages, genders and ethnic backgrounds and families from different social and economic classes to represent a whole community whilst in Case B different groups of children were involved at each stage of the project.

Table 6.1 the level of involvement in design process

		Case study A	Case study B
Project identification		Consulted and informed	Consulted and informed
Project design	Ambient environment		–
	Architecture feature		–
	Interior design feature	Consulted and informed Child-initiated, shared decisions with adults Adult initiated, shared decisions with children	Consulted and informed Child-initiated, shared decisions with adults
Implementation and evaluation		Consulted and informed	Consulted and informed
Celebrating and documenting lessons learned		Assigned but informed	Assigned but informed

In the second case study, drawings provided very rich data and the project designers could use them as a source of new ideas throughout the project e.g. the “Best Hospital in the world” drawing in Case B which has inspired the designer for the hospital entrance pillars (see section 5.3). However, the drawings are not the only source of inspiration to be relied on and further communication methods are required to obtain new ideas and views, e.g. verbal communication and other visual techniques.

In Case A, the Children’s and Young People Board consisted of 10 members, aged from 9 up to 18 years, and were both male and female. In Case B more than 10 people (for each area of focus) were involved and included the younger children, the youngest being 3years old. As it is shown in table 6.2: in Case B, they had to work with different groups of children and involved younger children and had to undertake more types of methods than in Case A. In addition, with regard to the people who have been involved in the projects (table 6.3) in Case A, a design team was involved throughout the process but in Case B there was not a representative of architectural company present in the participation process.

Table 6.2 the methods were used in design process

		Methods Case study A	Methods Case study B
Project identification		Questionnaire Modeling Workshops	Use suggestion box Drawing workshops
Project design	Ambient environment	Information fed from previous step	Information fed from previous step
	Architecture feature	Information fed from previous step	Information fed from previous step
	Interior design feature	Board meeting Competition Workshops	Workshop Competition Drawing Story book Use disposal camera to photograph what they like and what they didn’t like Chat
Implementation and evaluation		Board meeting	walk around the ward and talk to children and young people and get their feedback
Celebrating and documenting lessons learned		DVD making	TV series

Table 6.3 people who have been involved in design process

People	Children		Hospital staff	Design team
	3-9 yrs	9-18 yrs		
Case A	×	✓	✓	✓
Case B	✓	✓	✓	×

In both cases the interviewed designers believe that it is not easy to involve children in actual design and it can be done just as consultant. In both cases children were involved mostly in interior design e.g. curtain around bed.

6.4 Benefits of user involvement in the design process

This section tries to investigate the third objective of this research, which is:

To identify the benefits of children's participation in the design process of children's hospitals

Empowerment is one of the goals of user involvement, which related to the participants.

In Case B, children were treated as active participants in the project and they felt a sense of ownership in the process of participation. To feel empowerment depends on whether the users see that they have an opportunity to voice their opinions and been able to influence the final outcome. Surely, it is not easy to include each and every

idea and feedback comment from the user involvement in the product and therefore, sometimes participants in the project of Case B could not clearly identify their contribution to the final outcome. The outcomes of the analyses of the children's work in Case B conducted by the developers, in some cases, were not adequately communicated and discussed with the children involved. Consequently, linking the children's ideas and feedback to the final outcome was not specifically discussed with them. In contrast, in Case A, the involved children saw their influence and contribution to the project more clearly. The creation of the C&YP board for case study A which tends to maintain the availability of the participants throughout the whole process and their presence seemed to play a significant role in the children's perception that they were influencing and contributing to the final outcome.

In both cases there were opportunities to connect to the local community and get a real view of users of the hospital and its connection of the environment with user.

The value of the children's involvement involves any feedback comments they provide regarding improvements to the design and it refers to the quality of environment that can be obtained through understanding the experience of the children within the design process.

In both cases, the evidence indicates that the children's' influence on the design process in some instances such as the design of curtains around the bed (both cases), design of the courtyard (Case B), design of pillars in (Case B), the number of artwork designs with children (both cases), the choice of waiting area furniture (both cases), the colour and name of each floor (both cases) and the use of children's' picture in hospital signage (Case A) can cause the enhancement of the quality in the project.

In Case A, the quality enhancement from the children's' point of view can be seen more effective due to the existence of the C&YP board. Several of the children's' ideas and the issues observed during the process were included in the directions of future developments and the C&YP board has been noted as a focus of future developments.

Case B however, has seen several developments with a comparative number of groups of people and it has gained more ideas and feedback comments from children, which have led to influence the quality of environment.

In both projects - even after the opening of the new hospitals - further developments are being carried out. In both projects they pass the feedback and comments of users and the observations about the physical environment of the hospital to the youth forum and C&YPB and discuss these issues.

In order to improve the quality of the environment, in some cases existing evidence from other design projects was also used, e.g. in Case A, there are some lower windows which for children's wards, so when lying in bed they are still able to see the views. There is evidence suggesting that children need some form of distraction when they are awake lying on a bed (Hockenberry-Eaton et al, 1999).

Another benefit of participatory design process is "to see everything from a child's perspective", as there is no point for adults to think or decide about what the children need or prefer. Two examples from cases studied, which are described earlier in this chapter, can elaborate this better. As it was explained before, in both examples the adults thoughts and expectations were contrary to what the children and young people had perceived and feedback about the new design lay out. The next section describes problems faced in both cases during the process of participatory design.

6.5 Problems in the design process

This section tries to discuss following research objective:

To identify problems and issues associated with engaging children during the design process of children's hospitals

The involvement of users, and especially children, in the design process of hospitals is a complex procedure. Figure 6.2 highlights issues identified in both case studies.

- **Lack of having a dedicated person**

Firstly, the user involvement process was planned and executed without the involvement of a dedicated person in the field. In both cases there was a lack of a dedicated person who was available all the time and had time to communicate with children, give them a presentation, collect the feedbacks and be the link between the project team and the children.

- **Lack of design team representative**

One of the main challenges in Case B was the lack of design team representative, which was mentioned by interviewees H. One of the main goals of involving children was that “might influence the architect or create at least little spark in their thinking” (Interviewee H), so it was important that designers to be present when asking children to participate.

- **Lack of enough participants to engage the wider public.**

Furthermore, the C&YPB consisted of only 10 members, causing problems, as pointed out in an interview (Interviewee Q):

“I don't think we thought a lot about how we could add wider opinion from children. The childrens board was only 10 children. We need to engage the wider public.”

In addition, the hospital as a public place has to meet everyone's needs and therefore a wider range of opinion to be met. Involving a large number of children, however, with lots of ideas and views may create mass confusion. In Case A, in order to avoid this problem, they only involved 10 children but surely 10 people cannot represent the whole community.

- **Lack of control group**

If the children were not able to identify clear links between their ideas and the final outcomes it could hinder their contribution and motivation to be involved in the process. To find a solution for this problem, children's creations and ideas can be

analysed together with the children themselves along with a commitment from the whole project team towards the involvement of children.

In Case B, sometimes data was collected from one group and analysed by another group. Consequently, the children weren't able to recognise their contribution. This issue was addressed in Case A through the inclusion of C&YPB, which were available during the whole process. In Case B however, they involved a group children for each part of the project and they could get more feedback comments from the community. Notwithstanding in the design process of Case B, lack of control group to be involved all the way through and giving feedback comments is evident.

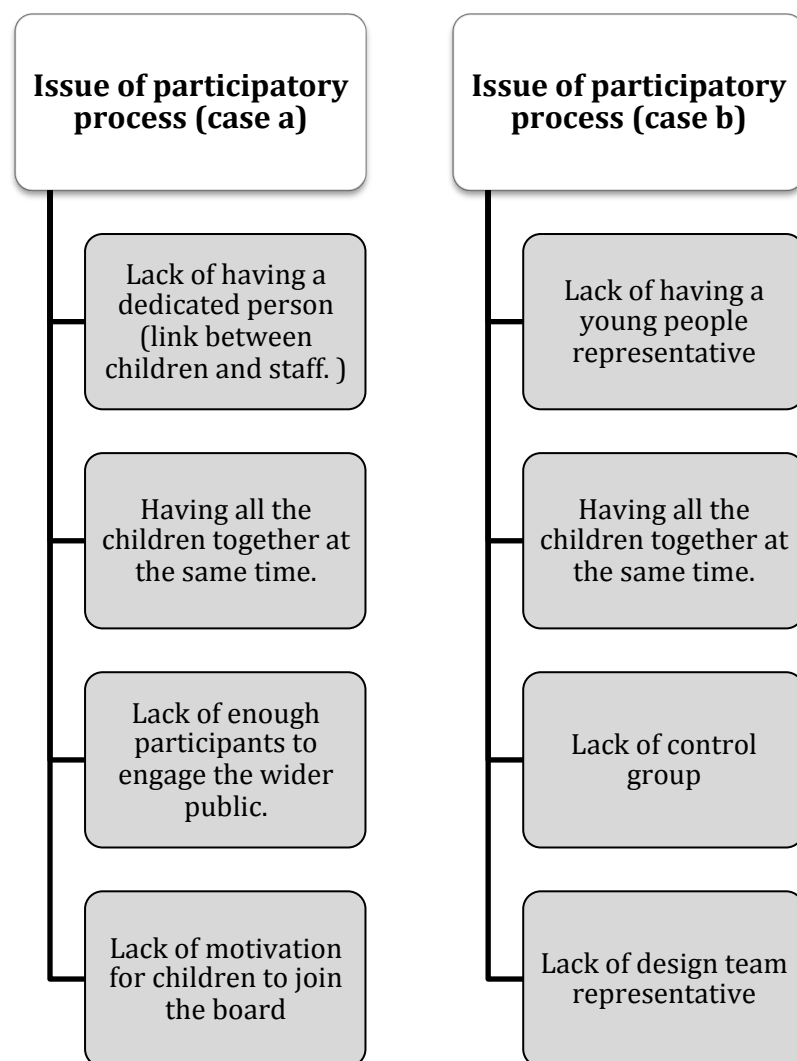


Figure 6.2 issues identified in both case studies.

6.6 Strategies adopted at both case studies to avoid difficulties with children's involvement in design

In terms of strategies adopted to find solutions to the issues identified in the literature review, table 6.4 illustrates the proposed solution in both case studies. The table also presents outcomes identified in the case studies.

One of the most successful solutions noticed by interviewees in both cases, was using different methods for each enquiry (asking the same question through different methods) and the outcome can be classified as common understanding by all and gain maximum information from the children. Also, this creative communication has an enormous effect on motivating children to get involved in the process. Its impacts on both cases were “Learning to communicate and collaborate in a group” and “Learning new technology skills and knowledge”. One of the techniques which were employed in Case A to motivate the participants was that each child or young person took it in turns to chair a meeting with adults and were expected to respect the golden rules as agreed by the C&YPB.

In both cases, confidentiality was achieved at its highest level through consent forms, agreements, informing the participants and not discussing medical conditions and treatments. In order to make sure that children's views would be considered continuously, both cases attempted to keep the forum alive and running. Moreover, in order to tackle the potential mass confusion problem (see session 2.11), both cases employed different strategies and were successful regarding this issue. In Case A the outcome can be summarised in “Limited comments and issues were explored and clearly understand the process and outcome of the design”. Similarly, in Case B the outcome can be expressed as “Perception of majority of ideas”. However, they also faced other issues, which are described in previous section.

Table 6.4 proposed solution and outcome to the issues identified

Issues	Process	Outcome
Communication	Have got staff there and they did a lot of things about how deal with children (A, B) Using different method (verbal and visual) (A, B)	Common understanding by all Gain maximum information from children
Confidentially	Consent form if their photograph or name is used (A, B) Verbal agreement if it was anonymous consultation (B) Not discussing medical condition and treatment (A, B) Discuss their view if they feel they want to share (B) Tell them where their information will be used (B)	Restore the participants confidence Encouraging the children to participate
Motivation	<ul style="list-style-type: none"> Creative communication (A, B) Each child or young people takes it in turn to chair a meeting. (A) Adult in meeting expected to respect the golden rules as agreed by C&YPB. (A) Have nice food and drink for them that bring them to the hospital and make them feel welcome. (A) 	Learning about the design process. (A) Learning respect for one's design partners. (A) Learning to communicate and collaborate in a group. (A, B) Learning new technology skills and knowledge (A, B)
Mass confusion	<ul style="list-style-type: none"> Use limited numbers of children for each project (B) The creation of the Children's Panel, which numbered no more than 10 children of different ages was a very good way of soliciting input. (A) 	Perception of majority of ideas (B) Limited comments issues were explored (A) Clearly understand the process and outcome of the design (A)
Sustainability	<ul style="list-style-type: none"> Trying to keep the Youth forum alive. (B) The PPI (Patient Participation Involvement) group (B) Trying to keep the C&YPB alive. (A) 	Focus on future development (A, B) Continues meet of user's needs (A, B)
Time	<ul style="list-style-type: none"> Engage patient in hospital (A, B) Local school children in school time (A, B) 4 times a year and do it on off school time, during school holiday. (A) 	Information easily accessible to team (A, B)
Technical issue	<ul style="list-style-type: none"> The children always had guideline provided by the architect, project leaders and head of paediatric nursing who would have direct communication with children (A) 	Enhance efficiency of process (A, B)

6.7 Summary

This chapter has discussed the cross case analysis for this research. Firstly, the chapter discussed the role of participatory design with children in children's hospital design. Secondly, the structure of the involvement of children during the design process of both case studies was broadly described, and considerations on the problem and

benefits of participatory process were reviewed. Finally, the proposed guidelines for future practice were discussed.

The following chapter describes the main conclusions of this research and presents suggestions for future work.

7 GUIDELINES

7.1 Introduction

The aim of this chapter is to establish a model of children's participation and set of guidelines. Recommendations are given to increase the effectiveness of future practice of children's participation models in hospital design process.

7.2 Establish a model of "Children's Participation"

There are number of factors that affect the extent of children's participation. As described in section 2.5 in the literature review, it is not necessary that children always operate on the highest possible rungs of the participation ladder. The hierarchy characteristic of Hart's model implies that participation at the higher levels is more valuable than on the lower rungs (Sinclair, 2004; Dorrian et al, 2000), and therefore a better representation may be needed to avoid this issue.

However, the Hart's model is based on 'general principles such as empowerment and respect for young people, rather than specific models or theories' (Shier 2001: 108). Moreover, from a practical point of view when considering children's participation in design consultation, this is a perspective that should be utilised: " 'one size fits all' model will fail to account for the very contextualised and unique ingredients that make up any children's participatory project within a community" (Malone and Hartung, 2010: 32).

As Treseder (1997) explained: 'It is therefore preferable to regard the five degrees of participation as five different, but equal, forms of good practice and to choose the one which will have the most benefit in a specific environment.'

Although this model can be more useful in displaying the complex nature of participation however, the degree that will have the most benefit in a specific environment should be chosen. This may affect the adaptability of the model in participatory processes such as the studies in this research.

Consultation with children needs to be planned very carefully prior to the design and

children's participation needs to be continuous throughout the process. The existing models of children's participation (see for example; Hart, 1992; Treseder 1997; Shier, 2001) identify some fundamental principles of participation. The effective participation however can be highly specific to the setting or context in which the activities take place (Ecorys 2011). The models can help to decide the most suitable level of participation to evaluate and improve children and young people's participation in the design process. Accordingly, the Hart model of participation has been used to analyse the level of involvement in both case studies of this research.

Through analysis of children and young people's level of participation in both case studies, it can be concluded that different levels of participation may be required at the same time. However, none of the case studies use the "Child Initiated and directed" level of involvement. As Dickens (2010) argues the "Child Initiated and directed" level as "limited to specific area, for example play activities.... the children do have control of the scheme, planning and implementing their project, but it is only in a relatively modest context." (Dickens, 2010:104)

However, the participatory process is more complex than could be described using the linear model of Hart's ladder of participation. Kirby and Bryson (2002: 37) argue that although the model is useful to compare different levels of participation "they fall short of examining how young people's level of decision making may shift between tasks, in different sessions and even from moment to moment and between young people". The study of participatory process in these two case studies manifested continual shifts in the balance of decision-making and initiation according to the situation and the stage of the design process.

In fact, based on analysis of this study, as it is shown in Figure 7.1 using visual models that only represent levels of participation in the same hierarchy (Treseder's, 1997), overlapping regions of different levels to enhance flexibility of the model of participation would create a maximum outcome for the process. Such models allow designers, planners and policy makers of children's hospitals to easily achieve different types and forms of children's participation with the highest level of outcome.

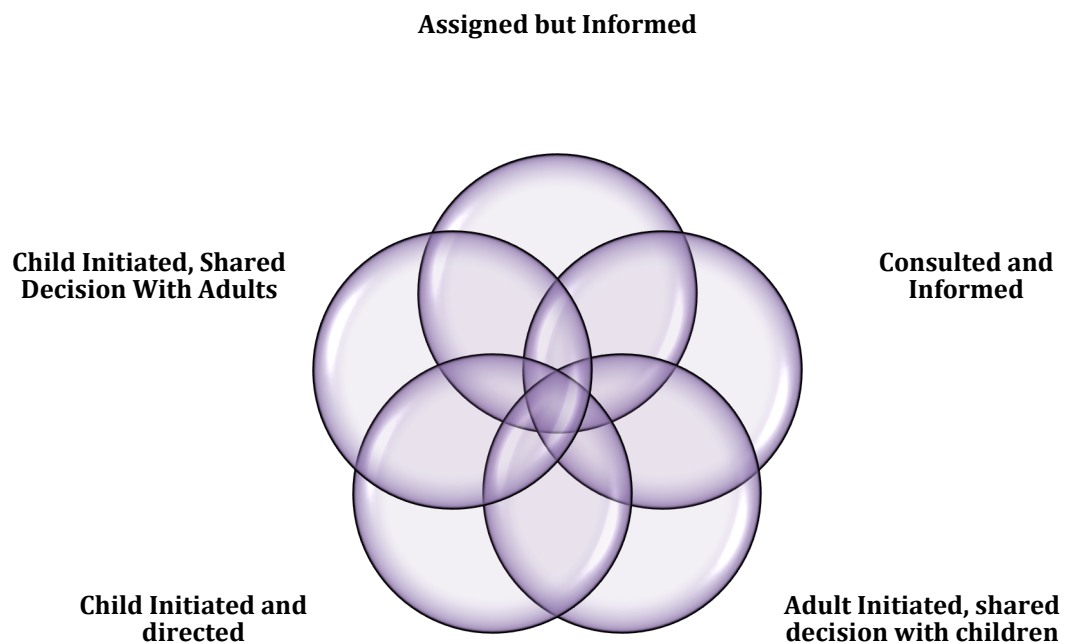


Figure 7.1 Proposed model of children's participation in design of children's hospitals

The guidelines drawn from cases studies are presented in session 5.6 below.

7.3 Guidelines for considering children and young people's preferences during the design process of children's hospitals

The guidelines developed within this research are based on the analysis of two case studies and an associated review of the existing literature. The researcher has evaluated the successful aspects of the projects and the problems and challenges faced when involving children and young people in the design process. This research has focused upon the development of appropriate guidelines for the inclusion of children

in children's hospital environment design. This guidelines aim to support people working with children and young people, in the healthcare sector (designers, planners and policy makers as well as people who may not have previously been informed about involving children and young people in the design process), to help the process of engaging with children and young people incorporating children's perspectives in the design of children's hospitals.

The Tool is for:

- Senior leaders within organisations that provide healthcare services for children and young people.
- Clinicians and non-clinical staff working in settings
- Directors with responsibility for service reconfiguration
- Patient and Public Involvement (PPI) professionals (such as people working in the NHS in the Patient Advice and Liaison (PALS) service)
- Service improvement leads.
- Patient and Public Involvement leads
- Design team

The people who need to be involved in the process will be chosen through an interview process for their creative skills and understanding of the client's area of expertise. The successful team will work in close collaboration with representatives to produce the followings:

- a well researched and comprehensive design brief and site analyses
- a concept design scheme aim to achieve full user- client sign -off on content
- outline planning approval

The resulting outcome can contribute to the finalisation of the Outline Business Case.

This information, including the signed-off sketch scheme, subsequently are accumulated as a client's requirement document for the Invitation to Negotiate (ITN). The team is required to use their innovation to efficiently deliver the different aspects of design solution in terms of building methodologies, value engineering, lean construction, facilities management, financing etc. Therefore, they are required to identify any opportunities for further improvement or additional income generation offered by the site. Consequently, the undertaken process would have the advantages of establishing a close relationship between the user-client and the initial design team, which will arouse the innovation and design quality as well as emphasizing the improvement of the resourcing of the early stages of design process.

It is thought that designers, health professionals and policy makers would be able to utilise the guidelines for the benefit of healthcare practices and services, and paediatric design. These guidelines can help: a) healthcare providers to make more suitable and appropriate decisions through being informed by the views and preferences of children and young people for whom services are provided, b) identify more effective and efficient ways to engage children's and young people's involvement in the design of children's hospitals.

In the realm of the project cycle model children should be involved as the main users of the children's hospital. Thus they should be able to give opinions, make suggestions, give information and take part in the implementation and evaluation of the project (Stephenson et al, 2004). In order to encourage participation and to support children and young people to express their views and their needs, the guidelines recognise that they should be supported to take the lead of some parts of project as well as in project evaluation. The following section will describe the steps of the participatory process in the design of children's hospitals.

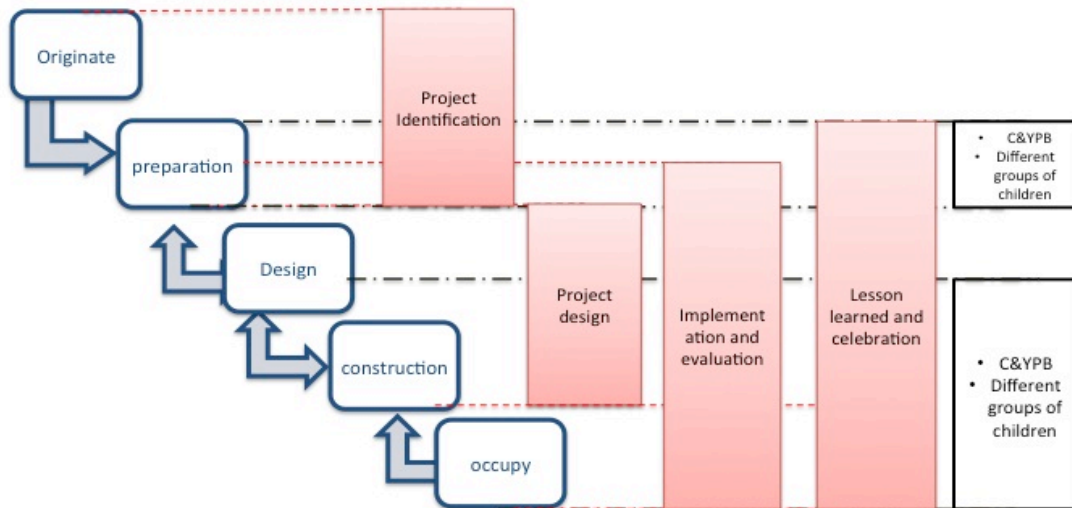


Figure 7.2 Linkage between main project design stages and the participatory project cycle

Figure 7.2, illustrates the link between the Participatory Project Cycle (described in section 2.8) and the main project stages. It also demonstrates when children's involvement is needed against the project lifecycle.

The main project stages include:

- **Originate:** This first phase involves all of the discussions, thought, and exploration that lead to the requirements of creating and development.
- **Preparation:** This comprises the project's scope, features, purpose, and functionality that will be defined.
- **Design:** At this stage a few layouts based on specific needs and priorities will be created. Final drawings will include: Space plan, Construction Drawings, Electrical Drawings, Plumbing Drawings, Heating, Ventilation, Air Conditioning Drawings, Interior Decoration including colours, floor finishes etc.
- **Construction:** This stage involves construction and implementation of the proposed layouts and plans.
- **Occupy:** This phase occurs from the beginning of the day the project is up and running.

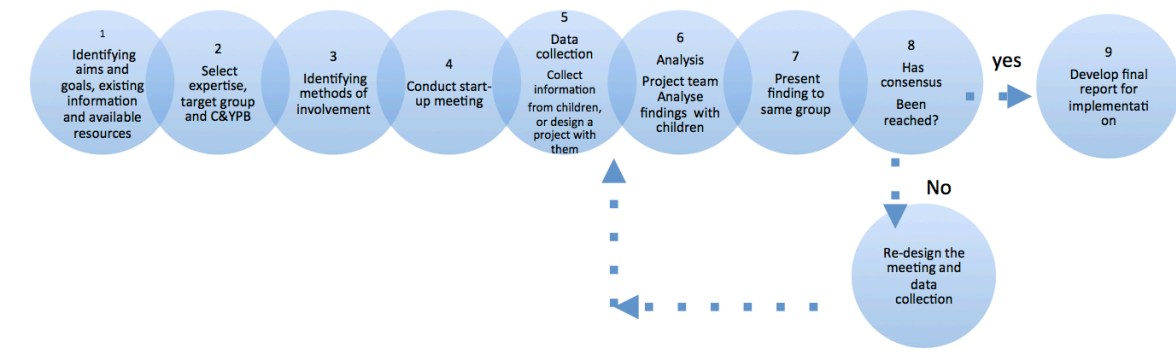


Figure 7.3 Project planning tool

The main stages of the participatory design process include:

Project identification

The first step of the project, project identification as has been illustrated in the project planning tool (Figure 7.3) aims, through establishing the specific requirements of the users (children and young people in this case), to identify the needs that a project should address. In relation to the main project stages (Figure 7.2), it can occur from the stage of “originate”; the inclusion of all of the discussions, thought, and exploration to “preparation”; comprising the features, purpose, and functionality of the activities.

At the project identification stage, the level of involvement can be classified as “consulted and informed”. It is perceived that the project will be designed and managed by the project team. However, children and young people will be informed about the process from the beginning and their opinions were treated seriously. At this level children and young people will be regarded as consultants whose role it is to contribute opinions towards the design work undertaken by the adults.

The first step of project identification focuses upon clearly **identifying the aims and goals** of each associated activity, which includes the identification of existing

information and available resources.

It is important to identify the aims and goals for each project in order to plan the next steps. Possessing insights of all stakeholders' views in regard to what should be changed, evaluated or developed will support an effective decision making process.

Identifying and evaluating the existing information is also key to a successful involvement process through expanding awareness of design involvement activities that have been carried out elsewhere (other children's hospitals), especially those that have been successful in the past. For example in Case A, the existing information from other projects gathered through communication with other children's hospitals as well as studying the existing participatory research with children by the project team.

In order to support involvement activities across a project **identifying available resources** plays a crucial and significant role. Given that the involvement process is costly, a devoted and realistic budget is vital to support involvement activities within a project. Moreover, staff and participants' time and their associated incurred expenses need to be considered during the process of identifying available resources.

The second step in the project identification stage focuses on **identifying the people** who potentially will be involved. Different groups of people should be included in the participatory process. Careful selection from different key groups, backgrounds, cultures and experiences to ensure a group representative of diverse populations, needs and issues to secure a comprehensive level of involvement throughout the process is required. Having a job description for participants - for users and staff - can facilitate the process whilst motivating children and young people to be involved. Therefore, the roles and responsibilities of the young person should be realistic and achievable. People who should be involved in the process can be described as:

– **Children's and Young People's Board (C&YPB):**

The guidelines identify the value of the creation of a Children's and Young People's Board. Ideally it should comprise no more than ten children of different ages and equally representative of gender to be involved during whole process to make sure that the final outcome meets their original creations and ideas and that their voices

have not been biased or overlooked through adults' interpretations. The correct balance of the number of children will reflect the management of the participation process and the possibilities for including their views on design. Establishing a Children's and Young People's Board would support making their contribution more visible and convey a sense of ownership for participants. As well as the idea of creating a C&YPB, having children and young people from a wider range of the community would also help to gain insight not only from children of different ages but also from children with different ethnic and social backgrounds who can link the different community groups through the wider community liaison. Such inclusion of a wider range of children occurred in Case B of this study, where a small group of children were involved specifically for each design project (e.g. design of curtains and waiting area). As a hospital is a public place to be used by different types of people from different communities, it would be ideal to have ideas and viewpoints from a broad range of children and young people as possible. The majority of the patients are less than 5 years old, and many are less than 2 years old. Therefore it is also useful to involve them with their parents/families in the process, as well of course as older children/patients.

A final point needs to be made that recognises the importance of including the voices of children who may not have been in hospital, as well as those who have been patients. It would be beneficial to have the ideas and views of children who are outside the hospital for a good connection with communities in the wider community consultation. It is worth emphasising the input from siblings as they are often affected by having a brother or sister frequently in hospital, and may spend a lot of time in the hospital themselves.

– **Having the necessary expertise available at all phases**

Having the necessary expertise available at all phases is essential in maintaining the links between the children's ideas and the final outcome and to ensure the viability of the participation activities. At this stage of the participatory process, involvement of a) a representative of the design team, b) project leaders c) the head of paediatric nursing and d) a facilitator is essential to support the C&YPB and other groups of

children who are involved in the process to identify which aims are achievable and also which are not possible.

The guidelines stipulate that to establish a successful design process when involving children and young people it is critical that a project facilitator is employed throughout all the stages of the process. The person specification of the facilitator will be an individual who is skilled in communication with children and young people and is also able to lead the project and keep the process on track. He/she can support and enhance the children's link to and liaison with the design team and can also interact with children to discuss any of their concerns during the process, the nature of the outcomes and any related issues.

Identifying the best methods that fit the brief of the project is the next step. Selection of the appropriate methods will depend upon locating the available resources such as budget, people and time. The goal of the project and the age of the participants will also be hugely influential upon the nature of the appropriate methods. Children and young people forums can provide the opportunity of engaging users in a more formal, longer-term capacity. Often the nature of the activity requires a mix of methods in order to maximise involvement especially when a broad engagement activity is planned.

Following the identification of available resources, people and methods a start-up meeting should be held. The start-up meetings aim to ensure that all participants understand the purpose of the project and the nature of their roles and responsibilities. Through these meetings relationships between the participants and the project team can be established and built upon.

Next steps would be **data collection, analysis and evaluation**. The need for more systematic ways of analysing and evaluating children's creative contributions is another major point. Creating a C&YPB board could be a major step towards achieving systematic ways of analysing children's contributions to the process.

According to Hart (1997, 162-163), such steps will indicate to the children that their

ideas are being taken seriously. Moreover, evaluation is a crucial aspect of the success of each project. The conclusions drawn from children's ideas should be discussed and evaluated with them in order to eliminate any potential misunderstandings. At the end of this stage, the findings and outcomes can be established as a brief for the architectural company.

Project design

As identified in both case studies, it would be beneficial to involve children prior to the design and after that, at the interior design stage. Involvement of children in project identification can influence the architectural design of the building. In relation to the main project stages (Figure 6.4), it can occur from the stage of "Design"; the creation of layouts of needs, priorities, styles of work and expectations to the stage of "construction"; the construction and implementation of the proposed design layouts.

The steps of participatory design at the interior design stage can be seen in figure 6.5, the project planning tool. Identification of the level of involvement for each single design is essential. Depending on whether the level is child-initiated, shared decisions with adults or adult -initiated, shared decisions with children, the stage of children's involvement would differ in some respect. If the level of involvement is adult-initiated, shared decisions with children, children will be involved at analysing and evaluating steps and if the level of involvement is child-initiated, shared decisions with adults, children will have a direct influence on design. Therefore children should be involved from the early stages but adults will carry out the final steps and in particular the decision-making steps.

With regard to determining which people should be involved at the project design stage the guidelines state that the same experts who attended the project identification stage should participate at this stage. At this stage, team representation from the community engagement groups (wider participation of children) could be comprised of different people. However, the C&YPB board and facilitator should be comprised of the same people in order to speed up and enhance the children's link with the project team and to make sure the process remains on track. Keeping records of information such as taking notes of discussions, interviews and copies of documents

such as drawings, photographs etc. could help to inform any new member of the C&YPB or a new facilitator.

Implementation and evaluation

The implementation and evaluation stage plays an essential role in assessing the long-term impact and sustainability of the project. This phase can occur from the beginning of identifying the user's need within the "preparation" stage and never really ends, as has been illustrated within the main project stages in Figure 6.4.

The C&YPB would review demonstrations of the designs at the board meeting where the strengths and weaknesses of the project could be discussed and decided upon. This could involve a monthly or bi-monthly meeting to create a feedback mechanism and to share outcomes.

Lessons learned and celebration

This stage of the participatory process involves the provision of documents describing what has been learned from projects by encouraging children to document their own experiences and learning. In relation to the main stage of project design depicted in Figure 6.4, it can occur from the "preparation" stage to the end of the project.

Lessons learned and celebration can be documented jointly by the board's members and adults. Children's board members, representatives of clinical staff, project team members and the design team can be involved at this stage. It could happen through DVD making, writing scripts, interviewing staff, writing an article, or sharing it with the trust through a newsletter to illustrate the good and bad points of the project.

7.4 Learning from the Design Process

Although the main aim of this study was not the learning effects of the participation in a design process, several interesting issues arose in the projects regarding this subject. Design collaboration can be seen as a learning process, which is an interesting topic for further research and will be briefly discussed here.

Design process, when it is conducted in collaboration with users can become a learning process where both the designers and users gain insight to each other's views (e.g. Cherry & Macredie 1999). Druin (1999) has categorised the design-centred learning discovered by her design team into five areas: 1) learning about the design process, 2) learning respect for one's design partners, 3) learning to communicate and collaborate in a group, 4) learning new technology skills and knowledge and 5) learning new content knowledge. Nousiainen (2008) recognises these areas on a more general level as three areas of learning: design, social, and learning skills.

In this study, learning first came up as one interesting point in Case A where the C&YP board used the golden role to communicate with children and help them feel they were a project partner. The project team and some children (see Document A) heavily emphasised the learning effects of the participation. Therefore, the learning skills were brought under investigation in the Case A project in some more detail, described as follows:

- *Design skills*: at a general level, such as more methodical ways of carrying out process and in more specific levels, such as different planning and design methods
- *Social skills*, the children learned to voice their own opinions as well as to listen and build ideas and opinions presented by others such as: golden role
- *General learning skills*, such as evaluating information.

7.5 Summary

The aim of this chapter is to establish a model of children's participation and set of guidelines. Recommendations are given to increase the effectiveness of future practice of children's participation models in hospital design process.

This chapter has discussed the new model of children's participation and set of guidelines for this research. The following chapter describes the main conclusions of this research and present suggestions for future work.

8 CONCLUSIONS

8.1 Introduction

This chapter expands upon the main findings related to the research questions and presents general conclusions based on this research. Furthermore, it discusses the strengths and limitations of this thesis and presents suggestions for future studies.

8.2 Recapitulation

This thesis has intended to explore the involvement of children in the design of children's hospitals. The aim of this research that guided the overall investigation was to (presented in Chapter 1):

Develop guidelines to support designers in incorporating children's perspectives in the design of children's hospitals. Focus is given to support the provision of friendly environments, and also environments that will promote recovery.

In order to address this aim, the thesis has:

1. Reviewed existing literature on the processes, methods, benefits, and issues of participatory design process with children and young people. It has intended to understand the issues regarding the involvement of children in healthcare design that might previously have been highlighted. This was addressed in **Chapter 2**.
2. Designed and carried out qualitative research through two case studies: Royal Alexandra Children's Hospital and Royal Manchester Children's Hospital; data was collected through interviews and analysis of existing documents related to children's and young people's involvement in the design in both cases. **Chapter 3** outlined the research method and **Chapters 4** reported the results from the investigation of the case studies and cross case analysis.
3. Produced guidelines for involving children, derived from the cross case analysis combined with knowledge from the existing relevant bodies of knowledge. **Chapter 5** presents the guidelines for designers to incorporate

children's perspectives in the design of children's hospitals through the involvement of children and young people in the process.

8.3 Findings with regard to the research questions

Research question 1

What makes the involvement of children in design of children's hospitals important?

The results of this study demonstrates the main reason why children and young people should be involved is to improve their own healthcare environment as active shapers and managers of their own lives. The United Nations Convention on the Rights of the Child (UNCRC) in 1989 sets out children's rights to provision, protection and participation and Article 12 of the Convention, i.e. the right to be listened to and to be taken seriously, makes a strong call for children's participation (see section 2.4.2). Another important reason for gathering and considering children's expectation is the importance of value, which can be a measure of customers' overall evaluation of a service rather than service quality.

A number of studies including Mitchell and Sloper (2000) and Buston (2002) have demonstrated that young people can have different experiences of services as well as different expectations of services, both before and during sequences of care, compared with those of parents and carers. When parents give their own viewpoints about the quality of care that their children receive, they do not necessarily match those of their children. Thus, it is necessary to appreciate young people's perceptions about the quality of care and their perspectives.

The UK government has committed itself to improving the quality of lives of children, young people, and their families (CYPU, 2001; DH, 2001; DfES, 2004). Feeding their views systematically into quality improvement initiatives would be one way of making the voices of children and young people routinely heard in healthcare (Hardman and Joughin, 1998).

Qvortrup (1994) draws a line between adults as human beings and children as human

beings in the course to adulthood. In fact the tendency is to see children as future adults, regarding them as who they will become, not who they are now (Moules, 2009). Cockburn (1998: 107) expresses that ‘this constant referring of children to their future potentials and possibilities belittles their present actions’, and Roche (1999: 486) argues that voices of children in the ‘here and now’ need to be heard and appreciated. This indicates that in order to improve their quality of care it is necessary to gain direct access to the voices of young people rather than relying on proxy reporting of their views.

A number of studies focused around making the voices of young people about their healthcare preferences and perceptions heard (Kari et al., 1999; Buston, 2002; Carney et al., 2003; Horstman and Bradding, 2002; Boylan, 2004). In particular, Doorbar (1996) found that if appropriate methods were chosen young people could express their views ‘in abundance’. According to Curtis et al. (2004) young participants, even as young as four years of age, could be helpful in expressing their healthcare perceptions and experiences. The studies highlight the evidence that children and young people can observe and assess more abstract aspects of healthcare, rather than looking only at the more concrete elements such as décor and food. The literature certainly tends to point to a huge potential in relation to views on the quality of healthcare design from children and young people.

Creating environments according to children and young people’s needs requires participation by children and young people as a routine part of the design and/or research. It is not however routinely practiced (Horelli, 2006). Consultation with children can be a time consuming, costly and difficult process to undertake. In particular, design teams may not feel confident in carrying the process out. Besides, they are not convinced that the consultation process has the capacity to add to their understanding of their design brief. If children are excluded from consultative processes then the potential of a children’s environment to meet the needs and preferences of children is weakened. Morison et al. (2000) argue, “it is difficult to achieve a valid understanding of a child’s wishes, because of the biases and expectations that adults bring to their evaluation of the situation” (p. 115).

Participatory design with children and young people provides access to the experience of hospitalisation from its user’s point of view and removes the need for layers of

assumptions by adults about children's experience. In healthcare design, adults' interpretations of what constitutes a supportive environment for children and young people are not what we should accept and implement.

Research question 2a

How the process of user involvement was structured and which methods were used?

To answer this research question about the process of user involvement, the nature of the whole design process, which was identified in both cases, has been studied in this research. This study shows analysis based on the cyclical nature of the whole participatory design process (see section 2.11). Both children's hospital case studies acknowledged that the ultimate aim of process was to generate value to users and users were involved in the design process.

At the project identification stage, the level of involvement in both projects was classified as "consulted and informed". Children and young people in both cases were involved through different methods, both verbal and visual to gain access to their views and feedback comments. All information captured was forwarded to the architectural designers to inform the design brief.

As it is shown in section 4.21, a similar level of involvement was used in all stages of both cases except the project design stage but the methods employed were different. The principal motivations and aims of each case study would reflect its different structure and employed methods. In Case A, focus was given to make a sample group from all ages, genders and ethnic backgrounds and families from different social and economic classes to represent a whole community whilst in Case B different groups of children were involved at each stage of the project (see section 6.3).

Research question 2b

To what extent can children be involved in the design process of children's hospitals?

In both projects participatory process was not continuous throughout the whole design process and there was a gap in both processes. Most of the designers interviewed believed that it is not easy to involve children in the design, and that they can only be involved in general consultation. In both cases, suggestions related to the architectural

design from children's perspectives were found in a previous step (project identification) and forwarded to the design team as part of the brief. Children were also involved during interior design e.g. in the design of the curtains around a bed, while in Case B they were also involved in the design of one courtyard. Children and young people can be involved in different stages of design process with different levels of participation where they can have the most influence. However this involvement should lead to developing designs that delight and satisfy patients' needs and at the same time also link in with healing aims and promote hospital design criteria.

Research question 3

What are the key issues regarding the engagement of children during the design process?

The literature poses a number of common barriers in involving children in hospital design. These can be summarised as: lack of time, lack of confidence, communication, mass confusion, sustainability/maintenance, interpretation of what children are saying and lack of facilitators (Table 8.1). In each case study specific strategies were adopted to avoid the difficulties and obstacles in children's involvement in design. However, in addition to these, the following problems were identified in the case studies, which require solutions to be identified.

- **Lack of having a dedicated person**

In both cases there was a lack of a dedicated person who was available all the time and had time to communicate with the children, give them a presentation, collect their feedback and be the link between the project team and the children.

- **Lack of a design team representative**

One of the main goals of involving children was to influence the design team in their thinking, however the absence of a design team representative during the children's participation was seen in Case B.

- **Lack of enough participants to engage the wider public.**

In addition, the hospital as a public place has to meet everyone's needs and therefore a wider range of opinion must be met. Involving a large number of children, however, with lots of ideas and views may create mass confusion. In Case A, in order to avoid this problem, they only involved 10 children, but surely 10 people cannot represent the whole community.

Table 8.1 barrier and potential strategies to be adopted

Barriers	Strategies
Communication	<ul style="list-style-type: none"> • Employ staff who are skilled in communication with children • Use different methods (verbal and visual)
Confidentially	<ul style="list-style-type: none"> • Consent form (Parental consent and school consent to facilitate time out from class if needed) • Never discuss medical condition and treatment • Discuss their view if they feel they want to share and tell them where their information is going to be used
Motivation	<ul style="list-style-type: none"> • Creative communication (such as using a disposable camera) • Each child or young person has the opportunity to chair a meeting • Preparing some rules which both children and adult are expected to respect equally
Mass confusion	<ul style="list-style-type: none"> • Use limited children and young people for each area of a project • The creation of a Children and young people's board
Sustainability	<ul style="list-style-type: none"> • Try to keep the children and young people's forum alive.
Time	<ul style="list-style-type: none"> • Use patients in hospital • Use local school children in school time • Do it on out of school time, during school holidays
Technical issue	<ul style="list-style-type: none"> • The children always have guidelines provided by experts

- **Lack of a control group**

In Case B, sometimes data was collected from one group and analysed by another group. Consequently, the children weren't able to recognise their contribution. This issue was addressed in Case A through the inclusion of C&YPB, who were available during the whole process. In Case B however, they involved a group of children for each part of the project and they could obtain more feedback comments from the community. Notwithstanding in the design process of Case B, the lack of a control group is evident.

Research question 4

What are the expected benefits of children's involvement and what are the actual effects of their involvement?

The benefits identified in both cases are similar to the espoused benefits described in the literature (presented in section 2.7). Benefits were expected for the project, public and users:

Empowerment is one of the goals of user involvement, which is related to the participants. In Case B, interviewees perceived that children, as active participants in the project, felt a sense of ownership while they were participating in the process. However, sometimes they could not clearly identify their contribution to the final outcome. Surely, one cannot include each and every idea and feedback comment from the user involvement in the product, but to feel empowerment depends on whether the users see that they have an opportunity to voice their opinions and have been able to influence the final outcome. With regard to Case B, the outcomes of the analyses of the children's work conducted by the developers, in some cases were not adequately communicated and discussed with the children involved. Consequently, linking the children's ideas and feedback to the final outcome was not specifically discussed with them. In contrast, in Case A, interviewees perceived that the involved children saw their influence and contribution to the project more clearly. The creation of the C&YP board for case study A seemed to play a significant role in the children's perception that they were influencing and contributing to the final outcome. The C&YP board tended to maintain the availability of the participants throughout the whole process

and their presence in the final outcome. The children clearly felt their participation yielded something that furthered the contents of the application.

Both cases had opportunities to connect to the local community and get a real view from the people who are going to use the hospital and most importantly the connection of the environment with user.

The value of the children's involvement includes any feedback comments they provide regarding improvements to the design and it refers to the quality of environment that can be obtained through understanding the experience of the children within the design process.

In both cases, the evidence indicates that the children's influence on the design process in some instances, such as the design of curtains around the bed (both cases), design of the courtyard (Case B), design of pillars in (Case B), the number of artwork designs with children (both cases), the choice of waiting area furniture (both cases), the colour and name of each floor (both cases) and the use of children's pictures in hospital signage (Case A) can enhance the quality of the project.

In Case A, the quality enhancement from the children's point of view can be seen better due to the existence of the C&YP board. Several of the children's ideas and the issues observed during the process were included in the directions of future developments and the C&YP board has been noted as a focus of future developments.

Case B however, has seen several developments with number of groups of people and it has gained more ideas and feedback comments from children, which have influenced the quality of environment.

Another benefit of the participatory design process is "to see everything from a child's perspective", as there is no point in adults thinking or deciding about what the children need or prefer. Two examples from cases studied, which are described earlier in this chapter, can elaborate this better. As it was explained before, in both examples the adults' thoughts and expectations were contrary to what the children and young people had perceived and fed back about the new design layout.

8.4 Research Contribution

This thesis has demonstrated that despite all the obstacles and issues children can be involved in the design process of hospitals. This thesis has been able to provide a range of contributions that include:

- Review and synthesis of literature relating to hospital design with children
- Identification of structures and methods that can be employed in the design of hospitals with children's involvement
- Identification of motivation and benefits of children's involvement in children's hospital design.
- Investigation of barriers to the involvement of children in the design of children's hospitals

In achieving its research aims, this thesis has also made additional contributions. It has:

- Provided a set of guidelines to assist designers, policy makers and healthcare professionals with involving children and young people in the process of designing children's hospitals

The next section describes the advantages and disadvantages of using Hart's model of participation in the analysis of cases studies for this research.

8.5 Strengths of the research

Notwithstanding the comprehensive aims for this study, it would be reasonable to say that this research has made useful contributions to them all.

Through the analysis of interviews with 27 experts such as designers, PFI members and NHS staff, a complete and overarching picture of aspects of the process has emerged.

The depth and quality of experts' data has enabled preliminary definitions of what constitutes a participatory process in design of children's hospital environments.

Components within the process of involvement have also been identified for their role and benefit in children's feelings of well-being in a children's hospital.

The results also reinforce that participatory design with children and young people can provide unique insights into their experiences and preferences, which cannot be found through any other way. The next section describes the limitations of the study and the potential for further research.

8.6 Recommendations for Further Research

Extensive research has been carried out to investigate the process of children's involvement in hospital design, but still more work needs to be done to optimise and generalise the participation of children and young people in the design process, in particular the children's healthcare environment.

There are several recommendations for further research, discussed as follows.

First, further research is needed to explore the costs that arise from the involvement of children in the design of healthcare environments. Such costs may include the cost of materials used during the process, the number of participants and staff that need to be engaged, costs incurred by employing different interview methods (e.g. cameras, drawings ...), extra managerial costs due to increased process complexity, among others.

Second, further research on the involvement of disabled children is needed. This might require different approaches to participation and imply different techniques, which also requires a more detailed examination of their roles.

Third, it would be beneficial to develop a framework to obtain and evaluate children and young peoples' feelings of satisfaction with the hospital environment and the process, which was developed by children's involvement.

Fourth, studies exploring links between the participatory process and the implementation of the participants' feedback and design ideas, i.e. how to transfer and

convey the children's ideas to the design team.

Finally, it would be useful to further our knowledge in understanding the relationships between children's design features in hospitals and children's use of the hospital settings.

8.7 Limitations of the Study

Identifying and addressing how to design a children's hospital environment through participatory approaches with children and young people was the main goal of this research.

There are a number of key limitations to the research. First, non-involvement of children in the study; it is unfortunate that none of the young people who may or may not have been involved in the process could be reached due to the extended time that ethical approval for that would take. However, there were some documents demonstrating the ideas and views of children about the process, which were used as evidence throughout the research.

Another restriction of the research is to identify when the findings can and cannot be generalised to other firms, communities or organizations. However, the sampling strategy used in this research ensured that representative large children hospitals within the UK was chosen and through extensive data description for each case study it is possible to obtain the result, which would be accepted for to the wider population. Therefore, an attempt has been made to provide as detailed a description of the two cases as possible and to consider all relevant contingencies. Consequently a set of main conclusions, in the form of guidelines for future projects, has been drawn.

8.8 Final comments

The focus of this study was to show how children could be involved in the design of healthcare environments and to identify the barriers for the participatory process with children in the design of children's hospitals.

This research provided evidence to support a better understanding of the importance

and role of participatory approaches throughout the design of children's hospitals. It has also provided a detailed description of the participatory process with children in two case studies and uncovered benefits, problems and strategies employed throughout the process by analysing data gathered from different sources, including interviews with design team, NHS staff and PFI members and different documents.

Finally, it proposed a set of guidelines deriving from both the literature and the main findings to facilitate the participatory design process with end users. It emphasises the structure and the methods of involvement as well as people who should be involved during the participation. Such recommendations can be applied in future design projects conducted with children to allow successful future participation processes.

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Appendix A: Ethical approval from the Research Governance and Committee of the University of Salford

Academic Audit and Governance Committee

Research Ethics Panel
(REP)



To Elham Sfanfariyafard
cc: Dr P Tzortzopoulos Fazenda/Prof M Kagioglou
From Tim Clements, Contracts Administrator
Date 16th August 2010

MEMORANDUM

Subject: Approval of your Project by REP


Project Title: Developing a framework in designing children's hospital in the UK

RGEC Reference: REP09/145

Following your responses to the Panel's queries, based on the information you provided, I can confirm that they have no objections on ethical grounds to your project.

If there are any changes to the project and/or its methodology, please inform the Panel as soon as possible.

Regards,

PP 

Tim Clements
Contracts Administrator
TC/JH

For enquiries please contact
Tim Clements
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Appendix B: Example on an interview transcript

Paediatric matron Paediatric matron in the Royal Alexandra Children's Hospital

Date: 23 September 2010 and 2 November 2010

The questions

Tell us more about yourself and where are you come from? What is your job role?

My name is X. I am paediatric matron and have worked here since February 2004.

What was your role during the design process of the Royal Alexandra children's hospital?

We've just started the design for this hospital as it signed off. I've been part of organization paediatric and looked at any adjustments that need to be made.

I also covered the head of paediatric nursing post whilst they were unable to lead the project. During this period there was a lot of communication to manage.

What were the major issues faced by children in the hospital environment before the design project?

In the old hospital one of the main issues was that there wasn't enough space around the bed area and we couldn't have parents stay at the bedside. On occasion they used to sleep in the playroom on mattresses laid on floor.

Really space was the biggest issue. Another issue was the lack of cubicals.

What are the major issues faced by children in the hospital environment in the new hospital building?

Generally they have lots of space and parents are now able to stay at the bed side. There are lots of cubicals and they have all got bathrooms. That creates a nice environment.

Do you think children like the Hospital environment? Do children seem happy about the hospital environment?

I think people love it. We tried to keep all areas cheerful, colourful and age appropriated. People's first impression was that they loved it and parents who have experience of the old hospital really prefer the new one.

What do you think children notice when they go around the Hospital? Do children notice the pictures and sculptures around the Hospital?

People mention the sculptures especially the design of the big mosaic tiles and the big sea sculpture located on level six. The pictures are not mentioned so much

Do you believe children notice colour? Do they notice brightness?

Yes they notice the colour and brightness. The floors are colour coded designed as part of the way finding strategy. The changes in the colour of floors are highly noticeable.

Do children complain about noise in Hospital?

When I go around the wards nobody generally complains about the noise in the hospital. Sometimes people in 4 beds say some children wake them.

Do you believe children can find their way around easily?

I think children find their way around easily. Parents occasionally get a bit confused

Is being able to go out into the gardens important to them?

I think the outside isn't used as much as it was previously used in the old hospital because it is not accessible by parents without a member of staff

Do you believe they would prefer share a room or be on their own?

I think during the night they would like to be on their own and by day they would like to share. The majority of children have their parents stay with them. I think teenagers definitely like the single room cubical because they can personalise their room and bring in their own personal items.

Do you believe children are happy with the shape of the rooms?

I have never really asked them about the shape of the room. The cubical rooms are square shape and nice. I have never heard any concerns about that. In 4 bed, they do have a lot of space, including a big bathroom with shower unit and there is lovely sea view. So, I have never heard any complains about shape or design of the room.

Do they think there are enough activities and entertainment for them?

It is variable. Some weeks we have a lot of people coming to the hospital. Volunteers who are part of an art project and the local education who read with children. We do have somebody who comes in to do massages for the children and patients. We have an Entertainment Company for them coming both as volunteers and a paid service. We also have people visit the wards and make children laugh some days a week. Towards Christmas we normally have a pantomime company come in and we have a play team to play in the inpatient area. There is a lot of things during the week but not so much at the weekend. There is a big problem that weekend wards go quiet.

Did you get any particular feedback about the new hospital environment from the children's' point of view?

We do have feedback cards asking what the patients or parents experience was like. It could be filling up by parents or children. They can be anonymous and or the person can add their details. They are simply posted in the feedback box. The team will open them and send them to me. I will then take it to the ward manager.

In our weekly management meeting we look at what happened during the week.

How did you achieve (gain) their views? Which activities specifically involved the

consideration of children's' perspectives, e.g. any direct consultation, any representative bodies that were involved, any community engagement initiatives?

We developed a children's board, which still exist today. It was a cross section of approximately 10 children who were involved in a number of things. For example, the furniture we put in they chose the colour for the ergonomic and furniture. They were involved in the choice of curtains and designed the print. They also designed what type of meals we need to have too. When we visited the cook-chilled factory we sampled all of the food and the children decided what they wanted to include on the menu.

So they had lots of involvement in things like that. Also they've been on the news at 10. When they have their meeting the chief executive would come along but they chaired the meeting. They would share their concerns and decide how to go forward.

Meetings were often held at weekends and out of school hours so during holidays, food and refreshments were supplied on opening the children's hospital, the children's board were invited to Thorpe park as a celebratory thank you, the board could received messages from the public and service users via the PFI team (often with comments and suggestions) and the board would feedback to service users via newsletter, notice boards and local media.

What were your criteria for choosing the children?

Obviously there was the children's board, which was cross section of children and included a mix of children who had and had not used the services , We also used a cross section from a wider attachment area using children from various counties; both sexes and children with special needs. Some children had previously used the services and some of them never used the service before. The children were aged from 8 up to age 17. We also involved a local school in a postal competition and things like that.

Who was involved in the consultation with children? E.g. Architect, parents?

Just children. We've had parent's forums but we haven't been able to sustain them. Children have responsibility for the meetings.

At which part/stage of Design process did you involve children?

The consultation process all happened before I arrived in the organization. As I understand it, the children focussed on the provision of light and have opened up space to get as much light in as possible. This is hopefully achieved by the glass roof and atrium area and maximising the amount of windows in the hospital that look outside.

What was the consultation about? (Architectural, Interior Design features, ambient environment)?

How any improvements we can make. We had several concerns about food (its quality and actual menu). They were involved in the curtain design (they designed the print) and furniture colour.

How did you communicate with children about them in particular? How did you talk to them in architectural language?

The children always had guidelines for what was and wasn't possible which came from the architect, project leaders and head of paediatric nursing to direct the children in what we could have. They always came up with ideas and we would always try to implement them if we could.

How did you motivate children to be involved in design process?

Advertised in local papers on Trust intranet, put out flyers for children and young people to join the children's board, took a cross section of ages, demographics, regular service users and non-service users met regularly and asked their opinions on all sorts of things, design of furniture, meals, decorations, colour schemes, curtains etc. Chief Executive usually attended as well. Ran competitions at local schools i.e. poster competition with prizes being a tour of the hospital, linked with local children organisations i.e. special needs etc.

How did you make sure children's expectations are met?

All ideas and suggestions gathered were taken to the children board meeting held every 2 months some were contacted in between times to review demo's of particular items etc at the board meeting pro's and con's discussed about items and votes for and against.

Did you use the curtain around the bed, designed by children?

Curtains around the beds were designed by the children following an art competition; these are still in use.

Who did analyse the data collected from children and were the children themselves there during the analysis?

PFI led on the analysing of data with members of the children's board present.

Did you get feedback from same children after developing a project?

Yes feedback after every meeting kept by PFI office

Is children board still exist? If so, what is it doing now?

Yes, now lots of children move on these years and some of them still want to be acting on it and some of them do not as they have moved on to college or work. We are just about to advertise another requirement in the hospital and local newspaper and. If people are interested they can become part of the children's board and the commitment to that is to be head 4 times a year. We try to do it outside of school time or during school holidays. During the meeting we will discuss particular issues with them.

Did you face any issues or problems during the consultation?

I think one type of the problem was trying to get all the children together at the same time. So, often had to be in the holiday period , weekend or evening. Age 7-8children can't attend late in the evening so you obviously need to have nice food and drink for them. Things like that bring them to the hospital and make them feel welcome. They were all very keen to be involve via email.

What procedure did you take to maintain/sustain child perspective for future?

Keep the children's board up and running.

What recommendation do you have for future effort such as these?how the process could be done better in the future, to better enable the consideration of children's needs into the design process?

I think there need to be time and commitment. Children and young people need to be listened to and at all levels. So, the chief executive is involved to listen to what children are expressing to get them involve much more.

I think another thing is having job description for each of them during the period of an involvement . By having a job description that they can see what effect they have and what there experiences will be.

Probably having a facilitator who is a key person that meets with them regularly, rather than changing them,for example a head paediatric nurse to make sure you have somebody who has all of the skills to always be that link.

From your point of view, how would you comment on new hospital environment?

Definitely positive. It is a lovely, wonderful building to come to work everyday. Especially it has a lot of facilities for children and parents. Bathrooms for staff and changing rooms (where staff is able to change their uniform) so staff do not have to get changed in the toilet. Totally different, just lovely.

Is there anything more you would like to add?

It much more work you can ever imagine

Appendix C: Extract of a log of case studies activities

The list of interviewees (Royal Alexandra Children's Hospital)

Interview wee	Date	What and where?	Position	Data collected
A	2 November 2010 1/5 h duration	Interview @ Hospital	Theatres	Site tour, Interview
B	22 September 2010 2 h duration	Interview @ Hospital	PFI Contract Manager	Site tour, Interview
C	19 November 2010 0/5 h duration	Telephone interview	Respiratory	Interview
D	2 November 2010 0.5 h duration	Interview @ Hospital	Project Manager – Construction / Commissioning	Interview and Document
E	12 October 2010 45 minutes duration	Telephone interview	PFI Project Sponsor	Interview and Document
F	23 September 2010 & 2 November 2010 1/5h duration	Interview @ Hospital	Matron	Interview
G	8 October 2010 0.5 h duration	telephone interview	Project Director	Interview
H	23 September & 2 November 2010 1h duration	Interview @ Hospital	Project Administrator	Interview
I	15 January 2011	Interview (sent by email)	Chief Architect	Interview and Document
J	2 November 2010 45 minutes duration	Interview @ Hospital	Teaching (B&H City Council)	Interview and classroom visit
K	16 November 2010 0.5h duration	Telephone interview	Artist	Interview
L	12 November 2010 0.5h duration	Telephone interview	Artist	Interview
M	10 November 2010 0.5h duration	Telephone interview	Art coordinator	Interview
N	9 November 2010 0.5h duration	Telephone interview	Interior designer	Interview
O	26 October 2010 45 minutes duration	Interview @ BDP office	The project architect	Interview and Document
P	17 November 2010 0.5h duration	Telephone interview	Artist	Interview
Q	2 November 2010 0.5h duration	Interview @ Hospital	Consultant	Interview
R	13 December 2010 0.5h duration	Telephone interview	Artist	Interview

The list of interviewees (Royal Manchester Children's Hospital)

Interviewee	Date	What and where?	Position	Data collected
A	4 February 2011 0.5h duration	Telephone interview	Head of PFI Clinical Planning & Development	Interview
B	17 January 2011 1h duration	Interview @ Hospital	Head of Nursing	Interview
C	17 January 2011 45 minutes duration	Interview @ Hospital	Associate Director of Service Planning	Interview
D	17 January 2011 0.5h duration	Interview @ Hospital	Patient Partnership Manager	Interview and Document
E	17 January 2011 1.5h duration	Interview @ Hospital	Therapeutic & Specialised Play Consultant	Interview and site tour
F	4 February 2011 0.5h duration	Telephone interview	Principal at NBBJ Architects	Interview
G	1 June 2011 0.5h duration	Interview @ Hospital	Project Manager	Interview
H	3 February 2011 1h duration	Interview @ Lime Arts	Director, Lime Arts	Interview and Document
I	11 March 2011 45 minutes duration	Interview @ University of Salford	Artist	Interview

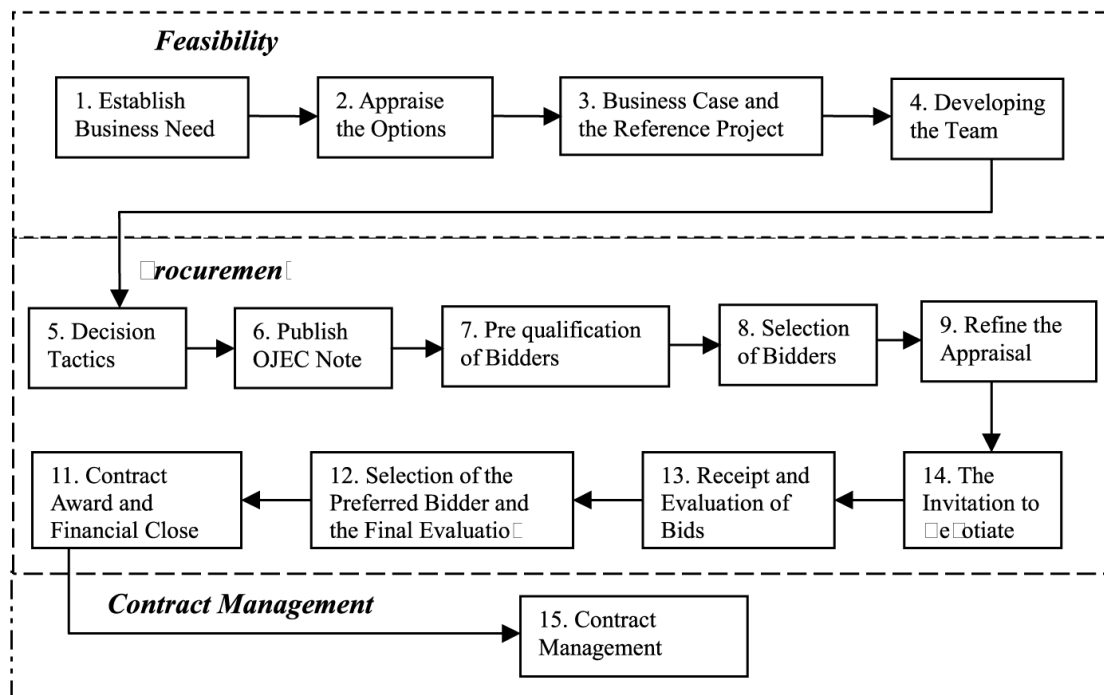
The list of documents analysed within in Royal Alexandra Children's Hospital

	Document	Collected from	Content
Document A:	Welcome to the royal Alexandra children's hospital (booklet, DVD)	Interviewee E	Project design process
Document B:	Royal Alexandra Children Hospital	Interviewee I	Abstract of project
Document C:	Project page.doc	Interviewee I	Abstract of project
Document D:	RACH - 3 texts.doc	Interviewee I	Abstract of project
Document E:	A01.jpg to A07.jpg	Interviewee O	Project architectural plans and sections
Document F:	Journal HD (Hospital development): the children's ark (AUG 2007)	Interviewee O	Project description
Document G:	Welsh Conference and Exhibition, 2009 Healthcare Estates,	Internet	Project design process
Document H:	Case note 06	Internet	Project timeline
Document I:	Brighton and Sussex, University Hospitals NHS Trust, 3Ts Project Design Update	Internet	Project description
Document J:	ROYAL ALEXANDRA CHILDREN'S HOSPITAL, BRIGHTON	Internet	Project description
Document K:	RACH CYPB Front Sheet - Bespoke Furniture-1	Interviewee D	Design of Furniture through consultation with C&YPB
Document L:	Agenda 070806-edit-1	Interviewee D	
Document M:	CYPB - Information Pod Content Meeting-edit-1	Interviewee D	Design of Information Pod with C&YPB
Document N:	CYPB-Pod1 - How the pod will look (1)	Interviewee D	Design of Information Pod with C&YPB

The list of documents analysed within in Royal Manchester Children's Hospital

	Document	Collected from	Content
Document A:	New Hospital Atrium Furnishing Project	Interviewee D	Patient Partnership Department Interns Programme
Document B	Teenage Chill out area	Interviewee D	Questionnaire about Teenage Chill out area
Document C:	Curtains-1	Interviewee H	Questionnaire about curtains
Document D:	New Children's Hospital – Information for Families	Interviewee H	Information for Families
Document E:	Final report fed back to Teen Talk, recommendations to SMT	Interviewee D	report of consultation projects
Document F:	Play area	Interviewee D	Play area photos
Document G:	Record of staff projects 08-09	Interviewee D	PPI activity
Document H:	Lime Art hydro report FINAL (1)	Interviewee H	Art hydro design process
Document I	Children's curtain design (2)	Interviewee H	Curtain design
Document J:	Drawing 3,4,5,6	Interviewee H	Children's drawing during the cnslation
Document K:	Art questionnaire	Interviewee H	Feedback
Document L:	A guided tour to artwork within the hospital	Interviewee H	Artwork design process
Document M:	New children's hospitals: identity and integration (The culture for the future of healthcare architecture: 28th international public health seminar, 22-26 June, Florence)	Internet	
Document N:	Central Manchester University Hospitals NHS Foundation Trust Annual Report and Accounts – 2010/11.	Internet	Annual Report
Document O:	Annual Report and Summary Financial Statements 2008/09	Internet	Annual Report
Document P:	Central Manchester University Hospitals NHS Foundation Trust Annual Report and Summary Financial Accounts – 2009/10.	Internet	Annual Report
Document Q:	Memorandum by Central Manchester and Manchester Children's University Hospitals NHS Trust (PS 53)	Internet	Redevelopment of the central Manchester site

Appendix D: The PFI process for client (public sector)



Appendix E: Preliminary aim of research

At first, this thesis has begun to identify and address how children can be involved in the design process of healthcare and it has aimed to interview with children who were involved in the design process as well as children who have been in hospital to find out their experience about the new hospital. However, due to ethical approval issues, limitations had to be placed on its scope.

That part of the research was planned to involve walking in-depth interviews with children and young people (participants). The idea of field trip grew by Robin Moore's (1990) which has an advantage of obtaining more insight and additional from non-verbal language and behaviour that would not have been discovered through an interview. Participants were able to give much more information about their activities and personal preferences through showing the researcher than would have possible through explanation. This technique aims to elicit the participants' experiences and perspectives on a topic in their own words and is useful in gaining insight into the depth and range of individuals' experiences and understandings. The researcher had initially planed to have tours of hospital environment with participants and talk about their activities in each area and how they responded to each type of environment.

Each interview might last approximately 30 minutes and it was planned to be accompanied by parents at all times. According to the age of children different methods and approaches was planned to elicit information such as: using disposable cameras to take photographs of their choosing of the hospital environment or carry a walkman and wear a microphone to record the conversation as the walking interviews carried out. There are several studies recommending the use of a visual image to prompt response in research with children and young people of all ages (Backett and Alexander, 1991; Dockett and Perry, 2003; Fasoli, 2003; France, Bendelow and Williams, 2000; Morrow, 2001).

The interviewees would be selected from outpatients- these children would have been inpatients previously but are now well enough to be home, and are usually just

visiting for the day to see a consultant- who could be found through searching in waiting area, consultation room and external play area. Consent forms and information sheets were developed for both participants and their parents/guardians to sign. The participants should be well enough to walk around the hospital for half an hour. The patient who uses wheel chair can be part of this tour if they are well enough for 30 minutes tour and interview. Children with drips or drains, terminal illnesses or profound disabilities will not be included in the study.

However, as it was not approved by Research Governance and Ethics Committee of university of Salford, the researcher decided to interview the NHS staff, PFI and design team members.

Appendix F: Consent form



Participant Interview Consent Form

Title: Guidelines for considering children and young people's preferences in hospital design

Researcher: Elham Sfandyarifard, PhD candidate, University of Salford, School of the Built Environment,

Email: e.sfandyarifard@edu.salford.ac.uk

Thank you for agreeing today to be a participant within the: ' Guidelines for considering children and young people's preferences in hospital design'.

The requested form of participation/contribution is by interview, which will take approximately half an hour.

By signing this form and giving your permission to the interview being recorded, on the understanding that on completion of the information will be stored safely by the researcher, that the recordings may be transcribed by external transcribers, who will not know your identity, and that the information gathered may be published as study findings but that your name will not be identified nor any comment traced to your self in the final written report.

You are free to refuse disclosing any documents and to withdraw your consent at any time.

.....

.....

Participant Signature

Print Name

.....
Date

.....

.....

Researcher Signature

Print Name

.....
Date

Royal Alexandra Children's Hospital PFI Project

Children & Young People's Board

Special Meeting – Information Pod Content

Board Room, Sussex House

Saturday 30th September 2006

Present: A., CYPB Member
 B., CYPB Member
 C., CYPB Member
 D., CYPB Member
 E, Consultant Surgeon
 F, PFI Project Manager
 G, HealthFX
 H, HealthFX
 I, HealthFX Technical Designer

Apologies: J, PFI Nurse Manager
 K, CYPB Member

Action

1. Welcome & Introductions

Attendees at the meeting introduced themselves and apologies were noted.

2. System Description

G, H and I from HealthFX refreshed everyone's memory with a description of the System. Two Information Pods will be purchased. The first will be sited in the Level 5 Entrance Area and the other on Level 4 in view of the lifts and stairs. Each Information Pod consists of 2 screens – one smaller screen with touch-screen functionality and a larger information screen which will be positioned above it. A picture of how this might look is issued with these notes. The structure holding the screens can be built to suit the surroundings. There is no link between the small and large screens – they are to be used for different purposes.

F to pass details about the Level 4 and Level 5 décor to HealthFX.

NB – Kajima will be providing 3 further large screens in waiting areas which will be part of the same system. These large screens will not come with the smaller touch-screen.

F

3 Content Discussions

3.1 Welcome Screen / Theme

It was agreed that the theme should match the planned animal motif being used in the building, using one or two animals per floor, linked by a common theme, eg the sea, or seagulls. It was suggested that maybe one wise animal and one playful animal was used per floor, but nothing scary! The animals can be cartoon versions of the static images used in the Hospital.

E also noted the Ark picture which is currently sited in Theatre recovery and could inspire the animal animation. E's suggestion of the use of this picture as a logo will be referred to The Project's Core Group. A picture of this Ark is issued with these notes for information.

The 'You Are Here' point will be relevant to the site of each pod, with local services (eg toilets) highlighted.

F to provide HealthFX with details of the animals planned for the Hospital.

Gary

3.2 Content by Age Group

It was agreed that the Content should be available to suit various age groups, eg Juniors, Seniors and Adults.

3.3 Answering Questions (on the small touch screen)

1 - “what will happen to me” covering the hospital journey for particular treatments with visuals of the actual areas.

2 - “don’t be scared to ask questions” with options for patients and parents to find out more about the hospital and treatments.

3 - “how to” details for things like prescriptions, raising concerns and making suggestions.

4 - Telephone numbers for Patient Liaison Services, Help lines, etc...

3.4 Identifying staff

1 - by type of uniform.

2 - by name in each Department (photographs were discussed, but were not popular with E!)

3.5 Signage Standards

Signage standards can be matched on the system (eg symbol used for Toilets, telephones and Vending Machines).

F to provide HealthFX with details of the planned Signage.

F

3.6 Explanations of Departments, Treatments and Medical Terminology

It was agreed that it would be useful for more information to be available about Departments, Treatments and Medical Terminology to help everyone who may not understand the medical and clinical terms. Anouk agreed to provide assistance in this process.

E

It was agreed that a department’s description would help in locating it.

3.7 Key Messages

A set of standard key messages will be included on the large screen, including the importance of hand washing, missed appointment figures, helping to keep the Hospital MRSA free, etc...

HealthFX

3.8 Directions

Internally, it was agreed that the floor layouts used in any internal signage should also be used in the Information Pod. Alternatively HealthFX can create a simplified version of our colour floor plans using CAD drawings.

F to check on the plans for internal signage and inform HealthFX.

F

Externally, the directional information should include how to get to the:

- main Restaurant
- Pharmacy Dispensary
- Trevor Mann Baby Unit
- Chaplaincy
- External Play Area
- Car Park
- Bus Stops
- Surrounding Roads

Directional information will be available by simple touch screen functionality.

HealthFX

3.9 Historical

The Historical Display about the old Alex will be a permanent feature of the Level 3 Corridor which is a public route 'under' the Children's Hospital for people going to and from the Thomas Kemp Tower.

Images from the display and some narrative will be used on the Information Pod to suggest that people visiting the Alex take some time and view the Historical Display.

It was also suggested that details about how the new Alex was built, including photographs of the construction, could be included.

F to provide a sample of the plans for the Historical Display to HealthFX.

F

3.10 Additional Queries

D – how often is the content changed?

At Whipps Cross, the same content has been in place for a year, with odd screen changes from time to time. This is up to the Trust, but changes will be at extra cost. Some information screens can be edited by Trained Staff at the Alex – for instant messages.

D – Can screen movement be slowed down, if some people can't read at the speed shown?

Yes it can – to suit our requirements.

E – are we still planning to implement in February?

Gary explained that the Trust is still working towards a February commissioning date, although it is possible that there will be an 8 week delay to the building being handed over. Kajima are due to confirm one way or the other in November.

D – can handouts be provided for blind people(in Braille) who won't be able to use the screen?

F noted that the main signage included some Braille and that the screens were one of several ways that people with different needs will be able to find their way around the hospital.

Suggestion Box

The idea of a keyboard sitting with the small screen (for leaving comments or suggestions to improve the system) was rejected as it would probably encourage people to spend too long at the Information point. A suggestion box will be available in the Reception area for people to leave comments.

With the information provided, HealthFX will develop a proto-type of the system to suit our requirements, covering the key issues. It is noted that some of the requirements will be future developments which will need additional funding.

HealthFX

5

Future Options

Future Animation

Any further animation after installation would need to go to HealthFX at further cost.

Advertising

A possible future option may see the agreement of external companies funding display screens (eg pharmaceutical companies advertising a vaccination offer).

Video

Inclusion of (silent) information video/s produced by the Hospital can be a future development. Sound is an option on the smaller screen, but this will need to be considered in conjunction with plans for piped music and events in the Atrium.

News Feed

Large Screen – Possible feed of local or national news, to suit our requirements.

Appendix H: selecting best option of seating for the waiting areas

Brighton and Sussex University Hospitals NHS Trust

RACH CYPB MEETING: 23 OCTOBER 2006

Subject:

Bespoke Furniture – Waiting Areas on Level 4 and Level 5.

Purpose:

To agree appropriate seating for the waiting areas in the Outpatient Waiting areas on Level 4 and 5 of the new Children's Hospital.

Background:

The main waiting areas on Level 5 (main outpatients) and Level 4 (Orthodontics, Xray, Respiratory and Social Workers) require appropriate seating.

Kajima is due to provide the Level 5 and Xray waiting area seating and the Trust is to provide the seating for Orthodontics, Respiratory and Social Workers.

Standard waiting room seating is possible in all of these areas (sample attached), but the Arts Strategy notes that Bespoke or customised seating should be introduced in keeping with the décor and modern image of the new building.

This is subject to Funding and the Rockinghorse Appeal has been informed of the possible need to raise funds for these items.

Three suggestions (A, B and C) were submitted by BDP (the Architects) to the Alex Arts Committee and their preference was Option A.

CYPB comments and opinions are now requested.

Suggested Level 4 and Level 5 Layouts for each of the above is attached.

Recommendations:

Agreement is sought to proceed with a Bespoke option, unless the standard seating option is preferred.



The CYPD Preference from the 3 bespoke options is requested.

Actions:

Date of Report: 3rd October 2006

Author: X

Appendix I: Example of Art questionnaire

Date	May-10			
Total number in sample		133		
Gender in sample	male 41 (30.8%)	female 92 (69.2%)	not shown	
Age range 	0-12 13	13-19 11	20-50 84	over 50 26
Hospital	MRI 33	Eye 16	SMH 23	Childrens 60
Patients	54			
Visitors	19			
Staff	52			
unmarked	8			
What do you think of art in the hospital	positive 113 (85%)	negative or not answered 20 (15%) see comment 		
Has the art in the hospital encouraged looking at art	yes 50 (37%)	no or not answered 83 (63%)		
Do art works help with wayfinding	yes 80 (60%)	no or not answered 53 (40%)		
How does the art work make you feel	positive 102 (77%)	negative, no different or not answered 31 (23%)		
Is the art work a talking point	yes 74(56%)	no or not answered 59 (44%)		
Is the artwork appropriate or inappropriate for the hospital	appropriate 117 (88%)	inappropriate 17 (12%)		

Appendix J: Achieving excellence – Design evaluation toolkit

FUNCTIONALITY

1. USES

Including: service philosophy, functional requirements and relationships, workflow, logistics, layout, human dignity, flexibility, adaptability and security.

2. ACCESS

Including: vehicles, parking, pedestrians, disabled people, wayfinding, fire & security.

3. SPACES

Including: space standards, guidance and efficient floor layouts.

IMPACT

4. CHARACTER AND INNOVATION

Including: excellence, vision, stimulation, innovation, quality and value.

5. CITIZEN SATISFACTION

Including: external materials, colour, texture. composition, scale, proportion, harmony, and aesthetic qualities.

6. INTERNAL ENVIRONMENT (**PATIENTS AND STAFF**)

Including: patient environment, light, views, social spaces, internal layout and wayfinding.

7. URBAN and SOCIAL INTEGRATION

Including: sense of place, siting, neighbourliness, town planning, community integration and landscaping.

BUILD STANDARD

8. PERFORMANCE

Including: daylight, heating, ventilation, air conditioning, acoustics, passive thermal comfort.

9. ENGINEERING

Including: engineering management systems, specialist & emergency systems, fire safety, engineering standardisation and prefabrication.

10. CONSTRUCTION

Including: phasing, maintenance, robustness, integration, standardisation, prefabrication, health & safety.

SUSTAINABILITY - measurement of sustainability issues should be done with the NHS Environmental Assessment Tool (NEAT).

(i) FUNCTIONALITY - 1) USES

USES		Score: 1 - Very poor / disagree 6 – Excellent / agree
1.1. Does the design respond to the service philosophy and strategy of the client?		
Issues to consider:		
<ul style="list-style-type: none"> Does the design support and enhance the clients healthcare philosophy and design vision? Does the design promote effective and efficient operation? Does the design provide a physical environment reflecting an agreed model of care? 		Do not put scores this box
1.2. Does the design meet the functional requirements of the brief?		
Issues to consider:		
<ul style="list-style-type: none"> Does the building contribute to the effectiveness and efficiency of the organisation? Are all of the user requirements, activity and performance levels achieved? Does the building offer sufficient capacity (eg. are there enough theatres, etc)? <i>Do the design proposals accurately and realistically interpret the operational policies?</i> 		Do not put scores this box
1.3. Does the design respect the importance and dignity of human individuals?		
Issues to consider:		
<ul style="list-style-type: none"> Is the design patient-oriented? Does the design show concern for the well being of both patients and carers? Are clinical, therapeutic and other services provided seamlessly? Does the hospital design ensure integration of its complex diagnostic and specialist activities, so that patients perceive a unified national health service? Is Information Technology used to ensure that information is shared between all providers in a patient focused manner? Is reliability considered in the broadest sense, leading to a feeling of confidence and trust on the part of the patient? Are departmental floor layouts reassuring to patients? 		Do not put scores this box
1.4. Are the relationships between different functions appropriate?		

<p>Issues to consider:</p> <ul style="list-style-type: none"> Does the building function well? (inter-departmental relationships) Are departmental relationships convenient? Are travel distances as short as possible? Are the more important departmental relationships given priority? (internal departmental relationships) Are room relationships convenient within departments? 	Do not put scores this box
1.5. Are the work flows and logistics within and between processes optimised?	
<p>Issues to consider:</p> <p>Healthcare processes:</p> <ul style="list-style-type: none"> Is the departmental workflow direct? Are the routes as short as possible? Are there cross-flows which could be inefficient or dangerous? <p>Logistics:</p> <ul style="list-style-type: none"> Are the movements of people, distribution of supplies, storage, and waste disposal appropriately planned? Are circulation routes clear and well organised for each type of traffic? Has there been an analysis of internal traffic and movement? Are the circulation routes of sufficient size to handle the projected traffic volumes? Are there any important routes which are not direct or are too long? Are routes wide enough and as direct and short as possible? Do number, size and location of storage and holding bays reflect supply & disposal policy? 	Do not put scores this box
1.6. Is the building designed to handle the projected throughput?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> Are the rooms and spaces of sufficient size to handle the projected workloads? (beds, theatres, c/e rooms, x ray rooms, waiting spaces, storage, etc.) 	Do not put scores this box
1.7. Is the building designed to be adaptable, to respond to change and to enable expansion?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> Is the facility flexible, facilitating rapid change, so that therapeutic, technological, organisational and formal innovations can be introduced? Does the flexibility of the structure enable change of use, upgrading and expansion with minimal disruption? Is the construction design capable of incorporating change and expansion whilst retaining design coherence? Is there an adaptability strategy covering building components and engineering services? Are spaces designed to facilitate change of use? Are departments extendable? Has space been allowed for departments to expand? (eg. Operating, wards, OPD, kitchen, ITU) Does the design of the building and engineering services include an expansion strategy? 	Do not put scores this box
1.8. Does the building enable discrete security and ease of control?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> Are entrances and departments designed to enable ready supervision and security? Does the design included suitable supervision and control points? Are staff easily able to monitor movements and activity in their departments (eg: from reception, nurses station, etc.)? Has cctv been incorporated into the buildings, the car parks and the grounds? Does the design maximise the isovistas and reduce risks? (see HFN 05) 	Do not put scores this box

Section 1.02 FUNCTIONALITY – 2) ACCESS

(a) ACCESS		Score: 1 - Very poor / disagree 6 – Excellent / agree
2.1. Is appropriate access provided for all vehicles, including on-site roads for ambulances, public transport, service vehicles, fire appliances?		
Issues to consider: <ul style="list-style-type: none"> • Are routes clearly marked? • Are roads, widths, turning circles etc. safe and convenient? • Does the site design accommodate public transport access / or is local public transport convenient? • Is site access good for all vehicles? 		Do not put scores this box
2.2. Is there adequate parking for visitors and staff cars?		
Issues to consider: <ul style="list-style-type: none"> • Is parking provision adequate for staff and visitors • Is separate parking for disabled people provided close to entrances? • Are drop off points appropriately provided at entrances? • Is sign posting to parking areas adequate? 		Do not put scores this box
2.3. Is access for goods and waste disposal vehicles segregated from public and staff access?		
Issues to consider: <ul style="list-style-type: none"> • Are separate access routes provided? • Are service routes clearly sign posted? • Are loading bays, roads, widths, turning circles etc. safe and convenient? 		Do not put scores this box
2.4. Is the external wayfinding and sign-posting strategy of high quality and fully integrated into the design solution?		
Issues to consider: External wayfinding: <ul style="list-style-type: none"> • Does the external appearance and site layout support intuitive wayfinding? • Are distinctive 'land marks' incorporated into the design (eg main entrance)? • <i>Is the use of repetitious building forms controlled to minimise disorientation?</i> Sign-posting: <ul style="list-style-type: none"> • Is appropriate sign-posting part of the wayfinding strategy? • Are routes and sign-posting from parking areas to entrances clear and obvious? • Are direction signs to on-site parking, entrances and departments good? • Are main parking areas and departments well sign-posted? • <i>Are entrances to the building sign-posted?</i> 		Do not put scores this box
2.5. Are pedestrians able to readily access the building?		
Issues to consider: <ul style="list-style-type: none"> • Are pedestrian routes obvious? • Are pedestrian routes well sign-posted? • Are pedestrian routes safe from vehicles with safe crossings? • Are the surfaces suitable for infirm or disabled people? • Are pedestrian routes free from obstacles? • Are routes pleasantly landscaped? • Are routes well lit at night? 		Do not put scores this box

2.6. Is access to the building appropriate for all, including disabled people?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> Do the facilities and access for disabled people on the site comply with HBN40 Vol4 1995 Appendix 1, and the DDA? Are parking spaces marked for disabled people? Are disabled parking space near to entrances? Are pedestrian routes suitable for disabled people? Is access to the building easy? Are routes inside the building clear of obstacles and easy to negotiate? 	Do not put scores this box
2.7. Does the fire planning strategy allow for ready access and egress?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> Are the buildings compartmentalised for fire and to provide safe horizontal escape routes? Do fire fighting appliances have free access to the building perimeter? 	Do not put scores this box

FUNCTIONALITY – 3) SPACES

SPACES		<p>Score:</p> <p>1 - Very poor</p> <p>/ disagree</p> <p>6– Excellent</p> <p>/ agree</p>
3.1. Is design based on appropriate space standards?		
<p>Issues to consider:</p> <ul style="list-style-type: none"> Do the 'functional content' and 'floor areas' match the requirements of the brief? Is the building design appropriately sized for the efficient use of its services? Are waiting and public spaces adequately sized (incl. WC's, Telephones, Food and Drink)? Are storage spaces adequate in number and size to accommodate all needs? 		Do not put scores this box
3.2. Does the design reflect the guidance in Health Building Notes and other relevant good practice guidance?		
<p>Issues to consider:</p> <ul style="list-style-type: none"> Do the 'functional content' and 'floor areas' match the guidance? - if not, has this been agreed with the client? Have differences been tested and demonstrated to be effective? Are differences justified by an alternative operational policy? Are differences justified by an innovative solution to planning? Are circulation and public spaces adequate? 		Do not put scores this box
3.3. Is the utilisation of floor space optimised?		

Issues to consider: <ul style="list-style-type: none"> Does the design encourage optimal use of floor space and effective working practices? Is the utilisation of floor space optimised? Are spaces shared where appropriate? Is there any obviously under-sized floor space? Is there any obviously over-provided floor space? 	Do not put scores this box
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Section 1.03 IMPACT – 4) CHARACTER and INNOVATION

CHARACTER and INNOVATION		Score: 1 - Very poor / disagree 6 – Excellent / agree
4.1. Does the design concept strive for excellence for patients?		
Issues to consider: <ul style="list-style-type: none"> Is the building therapeutic for patients? Does the building engender wellbeing? 		Do not put scores this box
4.2. Does the design concept strive for Healthcare excellence?		
Issues to consider: <ul style="list-style-type: none"> Does the design reinforce a strong positive image of the NHS? Does the building raise staff morale? 		Do not put scores this box
4.3. Does the building create a clearly defined architectural vision?		
Issues to consider: <ul style="list-style-type: none"> Is the buildings function clearly and confidently expressed by its physical elements? 		Do not put scores this box
4.4. Is the design stimulating?		
Issues to consider: <ul style="list-style-type: none"> Does the design have variety? Does the building have a positive character? 		Do not put scores this box
4.5. Does the building push on the boundaries of innovative design?		
Issues to consider: <ul style="list-style-type: none"> Does the development successfully translate the NHS Modernisation agenda in built form? Does the development clearly reflect new models of healthcare provision in the design? 		Do not put scores this box
4.6. Does the building design exhibit recognisable high quality?		
Issues to consider: <ul style="list-style-type: none"> Does the building look and feel substantial? Does the design enable and empower patients, staff and visitors? 		Do not put scores this box
4.7. Does the building demonstrate the value of good design?		

Issues to consider: <ul style="list-style-type: none"> Does the design reflect a positive step change in healthcare provision? Does the design raise the standard for the state of the art? 	Do not put scores this box
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Section 1.04 IMPACT – 5) CITIZEN SATISFACTION

CITIZEN SATISFACTION		Score: 1 - Very poor / disagree 6 – Excellent / agree
5.1. Is the design concept satisfying?		
Issues to consider: Composition: <ul style="list-style-type: none"> Is the composition complete and well balanced? Does the visual form enhance the site and the sense of place? 		Do not put scores this box
5.2. Does the design have an appropriate scale and proportions?		
Issues to consider: Proportion: <ul style="list-style-type: none"> Is the design well proportioned and pleasing? Scale: <ul style="list-style-type: none"> Does the scale relate well to adjoining buildings? Is the scale human, reassuring and not overpowering? 		Do not put scores this box
5.3. Is the design composition harmonious and consistent?		
Issues to consider: Harmony: <ul style="list-style-type: none"> Is the detailed design in harmony with the whole? Are the parts in harmony with the whole? Coherence: <ul style="list-style-type: none"> Do the parts have coherence and consistency? Is there consistency and attention to detail? Are all of the building and engineering elements well integrated? 		Do not put scores this box
5.4. Does the form of the building appeal to the aesthetic senses?		
Issues to consider: Line: <ul style="list-style-type: none"> Do the lines of the design clearly define forms and surfaces? Is the skyline pleasing? Shape: <ul style="list-style-type: none"> Do the solid forms have pleasing shapes? Light and shade: <ul style="list-style-type: none"> Does the interplay of light and shade enhance the design? 		Do not put scores this box
5.5. Are the external materials appropriate and attractive?		
Issues to consider: Materials: <ul style="list-style-type: none"> Does the choice of materials enhance the design? Are the form and materials well detailed? 		Do not put scores this box

5.6. Are colour and texture used to enrich the buildings design?	
Issues to consider: Colour and texture: <ul style="list-style-type: none"> • Are colours and textures used to articulate and enrich the buildings form? • Is three dimensional modelling and relief used to add depth to the design? 	Do not put scores this box

Section 1.05

Section 1.06 IMPACT – 6) INTERNAL ENVIRONMENT (PATIENTS & STAFF)

INTERNAL ENVIRONMENT		Score: 1 - Very poor / disagree 6 – Excellent / agree
6.1. Does the development create a high quality patient environment?		
Issues to consider: A reassuring internal appearance: <ul style="list-style-type: none"> • Is internal appearance calming and non-intimidating? • Is internal appearance harmonious and uplifting? • Are main entrances and reception areas welcoming? Privacy and dignity: <ul style="list-style-type: none"> • Is there privacy for confidential conversations? • Is personal privacy designed into bed areas and/or changing areas? • Are the principles of gender segregation reflected in the design? • Are facilities appropriate for disabled people? Materials and finishes: <ul style="list-style-type: none"> • Do materials and finishes offer variety and contrast? • Do materials and finishes enhance the interior design and wayfinding? • Are the furnishings, fittings and finishes well co-ordinated? Use of art to enhance the healing environment: <ul style="list-style-type: none"> • Is art integrated into the design? • Does the design make provision for changing art displays? 		Do not put scores this box
6.2. Are light and colour optimised for patients, staff and the public?		
Issues to consider: Light and shade: <ul style="list-style-type: none"> • Are light and shade used effectively to enhance the perception of three-dimensional space? Colour: <ul style="list-style-type: none"> • Do colour schemes create a warm and comfortable ambience? • Are colour schemes co-ordinated for continuity, wayfinding and variety? Daylight: <ul style="list-style-type: none"> • Is the quantity of space with natural daylight occupied by patients, staff and public optimised? • Are internal spaces and court yards orientated for optimum sunlight penetration? Artificial light: <ul style="list-style-type: none"> • Is lighting used creatively and sensitively to enhance the interior design? • Do lighting levels and positioning avoid glare? 		Do not put scores this box
6.3. Are views, optimised for patients, staff and the public?		

Issues to consider: <ul style="list-style-type: none"> Is the quantity of space with pleasant views occupied by patients, staff and public optimised? 	Do not put scores this box
6.4. Is the internal wayfinding strategy of high quality and fully integrated into the design solution?	
Issues to consider: Internal wayfinding: <ul style="list-style-type: none"> Is the interior designed to support an intuitive wayfinding strategy? Are distinctive 'land marks' incorporated into the design (EG art & sculpture)? Is the use of repetitious building forms controlled to minimise disorientation? 	Do not put scores this box
6.5. Are the internal spaces well planned and appropriate?	
Issues to consider: Social space: <ul style="list-style-type: none"> Are places provided for social interaction for patients, staff and public? Are sufficient public facilities (toilets, shops, cafeterias, information points, etc) provided? Are the public facilities in logical, visible places? Are facilities appropriate for children, elderly people, disabled people or people with special needs? Spatial quality: <ul style="list-style-type: none"> Is there a sense of spaciousness and is overcrowding avoided? Are spaces clearly expressed as a sequence of attractive enclosures? Are the layout and structure are well co-ordinated? Circulation spaces: <ul style="list-style-type: none"> Are long, narrow corridors, without daylight or views out, avoided? Are lobbies, sub reception areas and sub waiting areas attractive and well defined? 	Do not put scores this box

IMPACT – 7) URBAN and SOCIAL INTEGRATION

URBAN and SOCIAL INTEGRATION		Score: 1 - Very poor / disagree 6 – Excellent / agree
7.1. Does the design enhance the sense of place?		
Issues to consider: <ul style="list-style-type: none"> Has consideration been given to the building or development in its overall urban setting? Is the development well located in relation to local facilities? <i>Does the building encourage community activity and new local businesses?</i> <i>Does the building make a civic contribution?</i> 	Do not put scores this box	
7.2. Is the development a good neighbour to adjoining buildings?		
Issues to consider: <ul style="list-style-type: none"> Is the use compatible with neighbours and existing buildings? Does the building height, volume and skyline relate well to the surrounding environment? Do style, materials and colours relate well to the surrounding environment? Do/will local residents and passers-by like the building? Is the building well located in relation to local facilities? 	Do not put scores this box	

7.3. Does the development make a positive contribution to the neighbourhood and community?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> Does the design develop a sense of belonging and integration with the wider community? Is the facility integrated into the local community, social and cultural environment? Are volunteer associations and their support networks integrated and encouraged? 	Do not put scores this box
7.4. Does the design fit well on the site?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> Is the building integrated well into the site topography / townscape / landscape? Is there amenity space around the building? Are the site levels appropriate for entrances and access to outside spaces? Is land available for future development and expansion? Does the design take advantage of orientation? Were alternative positions on the site considered? Does it relate well to buildings of historical or architectural interest on the site? 	Do not put scores this box
7.5. Does the design reflect town planning authority requirements?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> Is the hospitals design well integrated into the local environment and infrastructure? Does the design satisfy outline planning approval? Does the design comply with conservation and listed building requirements? Is the facility an integral part of the local suburban environment? (rather than a detached, self-contained separate entity). Does the development support regeneration? Is the development well located for access in normal and emergency situations? (taking into account transport systems and the environmental safety of the site). 	Do not put scores this box
7.6. Is the hard and soft landscape design appropriate?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> Has external hard and soft landscaping (including court yards) been well considered for its therapeutic value and is it easily accessed by patients? Does the landscaping design support intuitive wayfinding? Does the landscape scheme maximise the security of pedestrians and avoid 'No-Go' areas? Does the landscaping around the building contribute to the community? Have the external grounds and gardens been designed for safety and security? Are the car parks, access routes, loading docks and entrances well lit? 	Do not put scores this box

BUILD STANDARD – 8) PERFORMANCE

PERFORMANCE		Score: 1 – Very poor / disagree 6 – Excellent / agree
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8.1. Is the use of daylight maximised as appropriate?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Are daylight levels appropriate to use (eg: controllable blinds, minimum glare, etc.)? • Is solar gain minimised? • Is deep planning minimised to allow maximum daylight penetration to clinical, patient and staff areas? 	Do not put scores this box
8.2. Is air quality optimised for patients, staff and the public?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Is the quantity of space with natural ventilation occupied by patients, staff & public optimised? • Are people able to access and operate natural ventilation through windows and vents? • Is the quantity of space with mechanical ventilation occupied by patients, staff and public optimised? • Is the quantity of space with air conditioning occupied by patients, staff and public optimised? • Are heating and ventilation levels controllable by occupants? • Are separate, well ventilated smoking spaces provided? 	Do not put scores this box
8.3. Are the acoustics designed for comfort and privacy?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Are sound levels comfortable? • Is the acoustic environment good? • Is sound insulation between rooms adequate? • Do the buildings acoustics enhance communication? 	Do not put scores this box
8.4. Are the buildings designed for passive thermal comfort?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Is passive summer cooling integrated? • Is solar gain minimised? • Does thermal insulation meet or exceed statutory requirements? 	Do not put scores this box

BUILD STANDARD – 9) ENGINEERING

ENGINEERING		Score: 1 – Very poor / disagree 6 – Excellent / agree
9.1. Does the design include appropriate operational building and engineering management systems and controls?		
<i>Issues to consider</i> <ul style="list-style-type: none"> • Are engineering systems flexible, efficient and economic in use and in use of resources? • Are local controls provided for use by staff and patients? 		Do not put scores this box
9.2. Are the specialist engineering systems appropriate?		

<i>Issues to consider</i> <ul style="list-style-type: none"> • Medical gases? • Fire engineering? • Emergency generators? • Batteries? • Nurse call systems? • Theatre and other lighting? • Cold water storage? • Telephones? 	Do not put scores this box
9.3. Does the engineering design optimise the use of standardised elements?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Structural elements • Plant and equipment? • Lighting fittings and bed head units? • Sanitary installations? • Etc? 	Do not put scores this box
9.4. Does the engineering design optimise the use of prefabricated elements?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Structural elements? • Plant pods or pallets? • Sub-systems? • Pre-wiring? • Etc? 	Do not put scores this box
9.5. Are the artificial lighting systems optimised?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • <i>Do the lighting systems optimise energy consumption?</i> • <i>Does the lighting design maximise therapeutic benefits?</i> • <i>Are control systems appropriate and accessible?</i> 	Do not put scores this box
9.6. Has a clear fire planning strategy been incorporated into the design?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Does the design include an appropriate fire alarm and detection system? • Is the facility designed so high life risks are not compromised by high fire loads? 	Do not put scores this box
9.7. Are the emergency backup systems designed to minimise disruption?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Medical gases? • Emergency generators? • Batteries? • Nurse call systems? • Heating? • Theatre and other lighting? • Hot water? • Cold water storage? • Telephones? 	Do not put scores this box
9.8. Are the heating, ventilation and air conditioning systems logically designed to operate efficiently and provide local control where required?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • <i>Does the design maximise the use of natural ventilation?</i> • <i>Does the design minimise the use of heating?</i> • <i>Does the design minimise the use of cooling?</i> • <i>Are surface temperatures of radiators appropriate?</i> • <i>Are zoning, draining and cut-off controls appropriate?</i> 	Do not put scores this box

9.9. Are the energy and power systems appropriately designed?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • <i>Is fuel consumption optimised?</i> • <i>Is flexibility maximised?</i> 	Do not put scores this box
9.10. Do the hot water and steam systems include appropriate operational engineering systems?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Are these engineering systems flexible and efficient? • Are these systems economic in use of resources? 	Do not put scores this box
9.11. Are the telecoms and IT systems easy to operate?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • <i>Are the telecoms and IT systems flexible and efficient?</i> 	Do not put scores this box
9.12. Is the water and drainage system efficient and effective?	
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Are these engineering systems flexible and efficient? • Do they minimise the use of resources? • Does the water supply system provide safe potable drinking water? • Are water pressures adequate for clinical processes? • Is the drainage system leak free? 	Do not put scores this box

BUILD STANDARD – 10) CONSTRUCTION

CONSTRUCTION		Score: 1 - Very poor / disagree 6 – Excellent / agree
10.1. Can the project be built in phases for planning or construction stages?		
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Has provision been made for future phases to be added with minimum disruption to the buildings in use? • Is phasing envisaged for the construction and future planned development? • Is this consistent with the estate strategy and development control plan? • Does the plan ensure that each phase works well? 	Do not put scores this box	
10.2. Can the building be readily maintained?		
<i>Issues to consider:</i> <ul style="list-style-type: none"> • Is the building easy to clean? • Is the construction durable? • Can components in the building be readily cleaned, maintained or replaced when necessary? 	Do not put scores this box	
10.3. Is the construction robust?		

<p>Issues to consider:</p> <ul style="list-style-type: none"> • Are the junctions between materials and components well detailed? • Do the components and finishes specified have sufficient strength and integrity for their functions or locations? 	Do not put scores this box
10.4. Are the engineering systems and structure integrated into the building and with each other?	
<p><i>Issues to consider:</i></p> <p>Are systems and structure clearly and logically and organised for:</p> <ul style="list-style-type: none"> • Ease of use? • Maintenance? • Future expansion? <p>Engineering systems co-ordination:</p> <ul style="list-style-type: none"> • Are the building and structural systems well co-ordinated? • Are the mechanical, electrical and water systems well co-ordinated? • Are IT and communication systems well co-ordinated? 	Do not put scores this box
10.5. Has the building been designed for health and safety in its construction and operation?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> • Does the facility support patients by conveying a feeling of safety and reliability? • Have clinical and other workplaces been designed for health and safety? • Does the design provide safe access and working conditions? • Have the following areas been designed and specified to prevent accidents and to comply with health and safety requirements?: stairs and lifts, floors, replacement and cleaning of glazing and windows, doors, radiators and hot water systems, lighting, cold water systems 	Do not put scores this box
10.6. Does the buildings design optimise the use of standardised elements?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> • Components? • Windows and doors? • Rooms, bed rooms, exam and treatment rooms, ablutions? • Etc? 	Do not put scores this box
10.7. Does the buildings design optimise the use of prefabricated elements?	
<p>Issues to consider:</p> <ul style="list-style-type: none"> • En suite pods? • External façade elements? • Roofing? • Etc? 	Do not put scores this box